University of Alberta

Intrapsychic Aspects of Alcohol Use:
A Daily Process Study of Drinking to Enhance and to Cope

by

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ABSTRACT

Motivational approaches to drinking have been heavily investigated, and researchers have distinguished between alcohol use motivated by a desire to enhance experience (enhancement-motivated [EM] drinking) or to cope with affective distress (coping-motivated [CM] drinking). Previous research suggests that both personal and situational factors may be important in determining EM and CM drinking; however, to date no daily process models have been tested to predict these intrapsychically-motivated reasons for using alcohol. This study tested the first daily process models of EM and CM drinking that integrate trait and daily factors. Participants were 81 Introductory Psychology students at the University of Alberta (*M* age = 19; 44.4% male). Participants completed surveys assessing typical drinking motives and behaviours, sensation seeking, conscientiousness, and a 14-day online diary assessing mood, task completion, alcohol use, and internal drinking motives. Hierarchical linear modeling tested models of CM and EM on drinking days. Level-1 (within-subjects) variables assessed daily covariation in positive and negative affect and task accomplishment. Level-2 (between-subjects) variables consisted of conscientiousness, sensation seeking, and typical CM or EM motives (depending on the model). Positive affect, typical enhancement motives, sensation seeking as well as two cross-level interactions were associated with daily EM. Less conscientious individuals were more likely to endorse EM when daily task accomplishment ratings were low, whereas highly conscientious individuals were more likely to endorse EM when task accomplishment levels were high. Sensation seeking predicted EM on days in which task accomplishment was high, but sensation seeking was unrelated to EM on days in which task accomplishment was low. Conversely, predictors of daily CM were daily positive and negative affect, typical coping motives, and three

interactions. Daily positive affect predicted less daily CM among those who typically endorsed CM, whereas non-CM drinkers were relatively unaffected by positive affect. Similarly, negative affect predicted higher daily CM endorsement only among typical CM drinkers. Conscientious participants were more likely to endorse CM when daily task accomplishment levels were high; less conscientious participants were relatively unaffected by task accomplishment. Thus, there was continuity between typical motivations for alcohol use and daily strength of endorsement of the intrapsychic motives.

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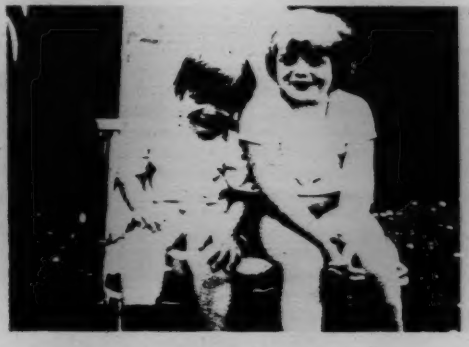

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CHAPTER 1

INTRODUCTION

Understanding the complexities and dynamics of university student alcohol use requires multiple levels of analysis, including assessment of the relative contributions of stable traits and of daily events and experiences. The present study investigated such a combination of dispositional and situational predictors of daily drinking behaviour, and in particular, enhancement-motivated drinking.

Alcohol Use Among University Students

You can always retake a class, but you can never relive a party. (Drew Navikus)

Heavy drinking among university students has been acknowledged for decades, and stories of drinking on the university campus have taken on almost mythical proportions. However, part of the complexity of university drinking is that, despite the high levels of alcohol consumption prevalent in academic environments, most students do not meet clinical criteria for alcohol dependence (e.g., tolerance, withdrawal; Baer, 2002). The postsecondary educational environment brings with it social norms supporting heavy alcohol use and thus students may not view their drinking as behaviour that qualifies them as a "drunk," or that seems particularly risky. Instead, even heavy episodes of drinking may merely reflect normative conduct for an individual within the university campus environment (Martin & Hoffman, 1993; Schulenberg, 2001, p. 474). Nonetheless, even in the absence of alcohol dependence, it is clear that many university students engage in *hazardous drinking* (i.e., consumption exceeding daily, weekly, or per-occasion thresholds, placing them at risk for adverse health and social events) and *harmful drinking* (i.e., physical, social, or psychological harms resulting from above-

threshold consumption patterns; see Reid et al., 1999; Fiellin et al., 2000). These patterns of hazardous and/or harmful drinking put university students at risk for a variety of negative outcomes (Perkins, 2002), including unplanned sexual intercourse (Poulin & Graham, 2001), sexual assault (Mohler-Kuo et al., 2004), physical and verbal aggression (Wells & Graham, 2003), injuries (Hingson et al., 2002), drinking and driving (Hingson et al., 2003), and dropping out of school (Hill et al., 2000).

Alcohol consumption is strongly embedded in the university experience and in the transition to young adulthood (Blane, 1979; Donovan et al., 1983), and a recent national survey estimated that 86 percent of Canadian university and college students engage in regular alcohol use (Adlaf, Demers, & Gliksman, 2005). Research on the natural history of alcohol use across the university experience indicates that the quantity and frequency of alcohol consumption typically increase upon entry into the university environment (Baer, 2002; Perkins, 2002). The most recent Canadian Campus Survey (Adlaf et al., 2005) found that nearly one-third of a representative sample of Canadian university students exhibit potentially hazardous or harmful levels of drinking, as evidenced by a score of eight or higher on the Alcohol Use Disorders Identification Test (World Health Organisation, 1992). These heightened and often risky levels of alcohol use typically decrease again – with few or no lingering negative effects – after graduation, a process referred to as the "maturing out" of heavy drinking (Park & Levenson, 2002; Perkins, 1999; 2002). Correlates of heavy drinking among university and college students include a history of drinking in high school, male gender, participation in university athletics, membership in a fraternity or sorority, and living in a university residence (Martin & Hoffman, 1993; Wechsler, 1996; Wechsler, Davenport, Dowdall, Moeykens, & Castillo,

1994). Expectations of positive outcomes associated with drinking, perceiving that alcohol use is very common among peers, and wanting to drink to become intoxicated are also positively correlated with heavy drinking patterns (Reis & Riley, 2000; Schulenberg & Maggs, 1996).

Psychological Theories of Drinking

"I drink to make other people interesting." (George J. Nathan)

Identifying predictors of student drinking is imperative because of the many areas of a student's life that can be affected by hazardous and harmful alcohol use. Moreover, such an understanding may help in efforts to design effective strategies and interventions to promote safe drinking practices among students (Boyle & Boekeloo, 2006). To understand the present approach to the study of drinking among university students, it is useful to review psychological approaches to alcohol consumption, from which much of the literature on student drinking has been derived.

Trait-based theories. Dispositional factors have long been considered important in alcohol studies. Many traits have been investigated, most of which can be located within Costa and McCrae's (1992) five-factor model of personality, one of the most influential descriptions of personality in the discipline. Among the broad array of personality factors that have been investigated, the present study considers the potential contributions of two to the prediction of alcohol use: *conscientiousness* and *sensation seeking*.

Conscientiousness, understood as the capacity for impulse control and behavioural self-regulation, corresponds directly with a superordinate factor in the five-factor model. As might be expected, there is evidence that conscientiousness is inversely related to levels of alcohol consumption (Cook, Young, Taylor, & Bedford, 1998). Sensation seeking,

understood as the need for seeking out varied and novel experiences (Zuckerman, 1994), has proven difficult to assimilate into the five-factor model, although recent evidence links it to the openness to experience facet of personality (García, Aluja, García, & Cuevas, 2005). In contrast to conscientiousness, research suggests that sensation seeking is positively correlated with levels of alcohol use (Martin et al., 2002; Park, Armeli, & Tennen, 2004).

Personality traits can relate directly to the likelihood of alcohol consumption; however, personality may also exert an effect by moderating the impact of other variables on alcohol use, including other personality traits and day-to-day situational factors such as mood (Sher et al., 1999). Because of the diverse ways that personality may exert its influence on drinking behaviour, the present study examined both direct and indirect effects of traits on alcohol consumption. Specifically, we examined the roles of conscientiousness and sensation seeking and the interactions between these personality dimensions and day-to-day variations in situational factors (e.g., mood) in the prediction of daily student drinking patterns.

Tension reduction theories. The tension-reduction hypothesis proposes that drinking alcohol alleviates distress, providing negative reinforcement that causes people to drink again when they become upset in order to again relieve their affective distress. In its original form, the tension-reduction approach proposed that such reinforcement has an effect on subsequent behaviour regardless of the individual's thoughts or reflections about it (Greeley & Oei, 1999; Wood et al., 2001). More recently, conceptions of tension reduction have moved beyond such a strictly behaviourist approach to consider the role of appraisals and expectancies in drinking. While the alleviation of distress remains a

determinant of alcohol use, these models emphasize that appraisals of the situation at hand combine with past experiences to shape the expectation that alcohol use will reduce tension (Carver & Scheier, 1994). From this modified tension-reduction perspective, appraising a situation as stressful and expecting that alcohol will relieve that tension, particularly when combined with a propensity for avoidant coping (denying or disengaging from a problem), can predict drinking in the face of stressful situations (Carver & Sheier, 1994; Catanzaro & Laurent, 2004; Kieffer, Cronin, & Gawet, 2006). In this revised form, there is considerable support for the tension reduction hypothesis; many individuals, including university students, report drinking to cope with affective distress (Cooper, Russell, & George, 1988; Cooper, Russell, Skinner, Frone, et al., 1992; Sadava & Pak, 1993; Park & Levenson, 2002).

Studies of drinking to cope examine an individual's *reasons* for drinking, implying that reflective consideration of alcohol's capacity to alleviate distress shapes the beliefs and expectations that influence decisions about drinking (Abbey, Smith, & Scott, 1993; Hussong et al., 2005; Kuntsche et al., 2005). Because this research indicates that, beyond a subconscious, mechanical form of negative reinforcement, cognition shapes and influences drinking to cope in ways that warrant careful consideration (Cox & Klinger, 1988; Hussong et al., 2005), researchers must turn to direct, often self-report, measures of the expectancies that predict alcohol use. The present study incorporates these insights within a model that takes into account how *self-reported* thoughts about how alcohol helps to regulate distress (i.e., "reduce tension") influence drinking behaviour.

Cognitive theories. Cognitive approaches to alcohol consumption typically invoke a broad range of beliefs about the anticipated effects of consuming alcohol in explanatory

models of drinking behaviour. What is distinctive about these models is that they articulate the positive expectations, as well as the negative expectations (e.g., tension reduction), that predict alcohol use. Brown (1985), for example, determined that those who expect positive results from their drinking (e.g., ease in sexual engagement) will engage in heightened levels of alcohol consumption, compared to those who do not hold such positive expectations. Similarly, Reis and Riley (2000) found that expecting positive results from consuming alcohol in social situations and perceiving that alcohol use was normative predicted increased consumption among students. Moreover, while heavy drinking students tend to expect that alcohol will reduce their stress (Hittner, 1995), those who expect that alcohol will lead to experiences of negative affect tend to consume less alcohol (Lee, Greely, & Oei, 1999). Expectancy models that incorporate such varied "reasons" for drinking have played an important role in the current alcohol research literature, where they have received good support (Brown, 1985; Reis & Riley, 2000; Wood et al, 2001). Drinking expectancies are embedded within the drinking motives that are the focus of the present study.

Motivational theories. As part of the family of cognitive models, motivational models go beyond drinking expectancies to describe additional variables that accompany decision-making processes that surround alcohol consumption (Cox & Klinger, 1988; Kuntsche, Knibbe, Gmel, & Engels, 2005). Motivational models include expectancies (beliefs about the *anticipated consequences* of drinking), but also include variables such as social judgments, mood, and especially incentives that shape decisions about whether or not to drink (Cooper, 1994; Cox & Klinger, 1988; Kuntsche et al,. 2005). From this perspective, alcohol-related decision-making refers to the emotional and cognitive

processes through which the benefits of drinking will seem greater than the benefits of not drinking if alcohol use is to occur (Cox & Klinger, 1988).

Drinking Motives

"I drink therefore I am." (WC Fields)

Although trait-based, tension-reduction, and cognitive accounts of alcohol consumption have been influential, recently there has been a growing interest in understanding drinking behaviour in terms of motives. Indeed, some have argued that motivational variables represent the 'final common pathway' to alcohol use (Cox & Klinger, 1988). Cox and Klinger (1988) articulated one of the first psychological models of alcohol use explicitly focused on motivational processes. In their model, positive and negative incentives play a role in drinking behaviour. They propose that an individual's perceived readiness to achieve desired outcomes, via alcohol or other means, influences the process of choosing whether or not to consume alcohol (Cox & Klinger, 1988; Cox & Klinger, 2002; Cooper et al., 1995). Their model portrays individuals as deciding whether or not to drink based on whether the positive affective outcomes that they expect from drinking will outweigh the outcomes that they expect from not drinking (1988).

Cooper's (1994) influential model builds on the work outlined by Cox and Klinger, and proposes that drinking motives differ in the nature of the reinforcement sought from alcohol use (positive or negative) and the source (internal or external) of the desired consequences of alcohol consumption. This conceptualization allows for identification of four drinking motives described in the research literature, each of which represents qualitatively different forms of drinking behaviour: drinking to be social, drinking to conform, drinking to cope with negative affect, and drinking to enhance

experience. Socially-motivated drinking is a form of externally motivated positive reinforcement, such that people use alcohol in order to obtain desired social rewards. Conformity-motivated drinking is a form of negative reinforcement, where people use alcohol to avoid censure from others. Enhancement-motivated drinking is a positively reinforcing form of internally- motivated drinking that seeks to improve one's positive mood state. Finally, coping-motivated drinking refers to negatively reinforcing internally-motivated alcohol use in order to regulate negative affect.

Each of these four motives is assessed by five items in the Drinking Motives Questionnaire, an instrument that was developed to operationalize this four-factor model (Cooper, 1994). Drinkers who are motivated by social purposes consume alcohol at parties, celebrations, or other group-oriented situations. *Social motives for using alcohol* are therefore assessed using items such as drinking "because it helps you enjoy a party," and "because it makes social gatherings more fun." Social motives characterize drinkers whose aim is to use alcohol to supplement an already positive social experience. Socially-motivated drinking may not have as its primary focus the consumption process; rather, the drinking may be one of a number of factors working together to promote an enjoyable social experience. Not surprisingly, then, drinking to be social is widely considered the drinking motive that is least associated with negative health and social consequences, although it does relate to the quantity and frequency of consumption (Cooper, 1994; Cooper, Russell, & George, 1988). Moreover, social motives are the most common reasons that undergraduate students give for using alcohol, with a social reason serving as the primary motivation in 63 percent of drinking occasions in one study (Kairouz et al., 2002). In comparison with other drinking motives, personality appears to

play a more limited role in its prediction of socially motivated drinking. However, low intellect/imagination was associated with social motives in one study (Theakston et al., 2004).

Those who are motivated to drink for conformity purposes use alcohol as a defense against possible censure from their social group. *Conformity-motivated drinking* thus reflects a desire to use alcohol in order to fit in with one's peer group. Drinking to conform is assessed using items such as drinking "to fit in with a group you like" and "to be liked" (Cooper, 1994). Conformity-motivated drinking has associations with problem drinking that are unrelated to the effects of actual level of consumption, perhaps due to the lack of other, more successful means, of coping with difficult situations (Cooper, 1994). For instance, negative mood was correlated with drinking to conform in a recent daily process study (Mohr et al., 2005). In terms of correlates with personality, drinking to conform is related to lower levels of conscientiousness, extraversion, intellect/imagination, and agreeableness (Theakston et al., 2004).

Cooper, Frone, Russell, and Mudar (1995) state that "coping motives for alcohol use are defined as the strategic use of alcohol to escape, avoid, or otherwise regulate negative affect" (p. 991). *Drinking to cope* is assessed with items such as using alcohol "to forget your worries" and "to cheer up when you are in a bad mood" (1994). Those who engage in this form of drinking turn to alcohol to help them manage affective distress. Many adults, including university students, drink to cope, and an increase of coping-motivated drinking in recent years has been documented (Cooper, Russell, Skinner, Frone, et al., 1992; McCormack, 1996; Sadava & Pak, 1993; Park & Levenson, 2002). About 11 percent of Cooper and colleagues' (1995) sample of adult drinkers were

identified as individuals who drink predominantly in order to cope, and this was also associated with increased levels of depressive symptomatology. Stewart and Devine (2000) found that personality could be used to predict drinking to cope and to enhance (intrinsic drinking motivations), but not drinking to conform or to be social (externally-motivated forms of drinking).

Among students, heavy drinkers, as well as individuals low in extraversion, tend to expect that alcohol will reduce their stress more than do other students (Hittner, 1995; Theakston et al., 2004). Theakston and colleagues (2004) found a small inverse relationship between coping-motivated drinking and all five of the "Big Five" personality traits. A recent daily diary study confirmed the links between coping-motivated drinking and experiencing of more negative emotions and fewer positive emotions on days that alcohol was used (Mohr et al., 2005). Weekday drinking appears to be linked to drinking to cope with negative affect more than weekend drinking, which appears to be motivated by social and enhancement purposes (Mohr et al., 2005).

Drinking "because you like the feeling" or "because it's exciting" refers to *enhancement-motivated drinking* (Cooper, 1994). So defined, enhancement-motivated drinkers aspire to enhance positive emotional experiences (Cooper, Agocha, & Sheldon, 2000). In an important early study, Wills and Schiffman (1985) proposed that people drink to enhance experience when they are tired or underaroused. On this view, enhancement-motivated drinking is prompted less by either positive or negative affect than by a felt need to intensify the experience of any emotions, regardless of valence. The issue is not drinking because one feels either "bad" or "good." Rather, the instigating conditions for alcohol use are the absence of new, varied, and intensified feelings.

Consistent with this perspective, Cooper and her colleagues (1995) reported that sensation seeking and alcohol expectancies interacted to predict enhancement-motivated drinking. Cooper sees enhancement-motivated drinking as behaviour that seeks to attain desired emotions or experiences of emotions (1995). Specifically, in comparison to other drinkers, those who drank primarily to enhance experience reported more positive affect (adults only), scored higher on sensation seeking (adolescents only), and consumed more alcohol but exhibited fewer alcohol problems (adolescents only). In terms of personality constructs, one study demonstrated relations of enhancement drinking with lower levels of conscientiousness and higher levels of extraversion, and found the same results as well as a positive correlation with higher intellect/imagination (Stewart & Devine, 2000). In one study, about thirteen percent of adult participants and sixteen percent of adolescent participants endorsed enhancement as their primary drinking motive (Cooper et al., 1995). Interestingly, many individuals who drink to enhance also drink to cope (Cooper et al., 1995). One can understand this link by acknowledging that both enhancement and coping drinking have at their core a desire for the drinker to affect emotional change.

Current state of the drinking motives literature. Motivational approaches to drinking behaviour have been the focus of intense research efforts over the last 15 years, and, notwithstanding the influential contributions described in the previous subsection, there has been significant diversity of scholarship within motivational approaches of alcohol consumption. Kuntsche et al. (2005) recently conducted a comprehensive review of the drinking motives literature. This review identified several key conceptual, methodological, and substantive issues associated with research on drinking motives. For example, although drinking motives and reasons for drinking are frequently used without

distinction, there exists a conceptual divergence between the two terms. *Reasons* take into account the facts of a situation in order to form a judgment and are more specific to one particular situation, while, in contrast, drinking *motives* are less situation-specific and include factual information in combination with more habitual, less conscious reasoning processes (Corsini, 2002; Kuntsche et al., 2005).

Varying approaches to understanding drinking motives have contributed to a rather diverse array of measurement approaches in this area, as well as difficulty in comparing research findings across studies (Kuntsche et al., 2005). Kuntsche and colleagues (2005) identified 54 studies of drinking motives that together used 25 measures of 2 to 10 motive constructs each. A variety of assessment methods have also been used, including open-ended questions, single item indicators, and composite scales, resulting in a broad array of measures of drinking motives (Kuntsche et al., 2005). The most commonly used measurement scale used in this area is the Drinking Motives Questionnaire (DMQ), which was described above (Cooper, 1994). The subscales contained within the various measures most frequently include drinking to deal with affective distress, drinking for social purposes, social pressure to consume alcohol, and pleasant emotions, which is reflective of the four motives represented in the DMQ (Kuntsche et al., 2005). Drinking to conform to perceived social pressure was the least-studied drinking motive in Kuntsche and colleagues' (2005) review. Cooper's DMQ refines earlier investigations by delineating the positive and negative valence and the internal or external source of anticipated drinking outcomes (Cooper, 1994; Kuntsche et al., 2005).

Each of these four drinking motives is differentially related to aspects of alcohol use, including consumption and alcohol problems. Drinking prompted by social motivations, for example, is associated with less quantity and frequency of consumption in comparison with enhancement and coping motives, while conformity motives are in fact negatively associated with alcohol use (Cooper, 1994). Coping and enhancement motives have associations with increased quantity of consumption (Cooper, 1994). Moreover, those individuals who typically consume seven or more alcoholic drinks per drinking occasion are especially likely to endorse items assessing enhancement motives for alcohol use when the scale includes an item reflecting a desire to feel intoxicated or high (Carey, 1993; Cooper, 1994).

In terms of problems with alcohol, social motives appear to be relatively uncorrelated with problem drinking among most student drinkers (Cooper, 1994; Stewart et al., 2001). Although drinking to conform tends to correlate with less alcohol use overall, this motive has been shown to relate to negative drinking consequences (Cooper, 1994). Coping-motivated drinking has perhaps the clearest and most robust relations with drinking problems (Cooper, 1994; Cooper et al., 1995; Kassel et al., 2000; Kuntsche et al., 2005). Avoiding dealing with one's difficulties via the use of alcohol appears to have a magnifying effect by contributing to the development of alcohol problems (Cooper et al., 1995; Kassel et al., 2000; Kuntsche et al., 2005). Finally, the evidence of relations between the enhancement motive and drinking problems is mixed (Kuntsche et al., 2005). While some studies have found that enhancement motives are associated with problem drinking, other studies have not demonstrated this effect (Cooper, 1994; Cooper et al., 1995; Read et al., 2003; Kuntsche et al., 2005).

Kuntsche and colleagues (2005) conclude their review by noting that the majority of studies relating to drinking motives assess at least two of social, coping, and enhancement motives, but have largely ignored conformity motives. Moreover, items assessing drinking to become intoxicated are classified as social motives in some research studies, the present study follows Cooper (1994) and other researchers in characterizing this item a key factor in assessing enhancement motives (Kuntsche et al., 2005).

Intrapsychic Motives for Drinking: Coping and Enhancement

Emerging evidence suggests that in comparison to externally motivated alcohol use, internally motivated forms of drinking behaviour are associated with higher consumption levels and alcohol problems. For example, Kairouz and her colleagues (2002) found that heavy drinkers are likely to endorse individual enhancement motivation items that reflect a desire to become intoxicated or high. Similarly, Carey (1993) demonstrated higher levels of enhancement motivation among heavy drinkers. Moreover, enhancement drinkers show a greater likelihood of drinking to excess when compared with socially motivated drinkers (Karwacki & Bradley, 1996).

More salient, however, are associations between coping motives and alcohol use outcomes. Similar to drinking to enhance motives, drinking to cope with negative affect predicts heavy alcohol consumption and higher frequency of use (Abbey et al., 1993; Cooper et al., 2000). Not surprisingly, coping motives are also associated with an increased risk of problems related to alcohol use (Carey & Correia, 1997; Cooper et al., 1995; McNally, Palfai, Levine, & Moore, 2003). McNally and colleagues (2003) state that coping motivation and drinking problems were both heightened among those who carry a negative self-view.

The preceding studies have provided a fairly complete picture of how different drinking motives are associated with alcohol consumption and, given their differential associations with high consumption levels and alcohol problems, this body of research suggests that it is important for future research to focus on coping and enhancement-motivated drinking behaviour among university students (CM and EM drinking, respectively). Although research to date has emphasized CM and EM drinking *consequences*, there have been far fewer studies that have emphasized different *antecedents* of these drinking motives. Preliminary work suggests that both trait and situational factors may each be important in developing models of coping and enhancement-motivated drinking behaviour.

Personality traits. Stewart and colleagues have initiated a line of research of personality correlates of CM and EM drinking. Stewart and Devine (2000) measured personality correlates of these drinking motives among university students and found that high levels of trait neuroticism were related to CM drinking, while low extraversion and high conscientiousness were predictive of EM drinking patterns. In a subsequent study, Stewart, Loughlin, and Rhyno (2001) reported that CM partially mediated the effect of neuroticism on heavy drinking patterns. These results confirm that trait measures from the "Big 5" model (Costa & McCrae, 1985) are useful for understanding intrapsychic motives for alcohol use.

Affect and affective triggers. It is theoretically plausible that negative affective states (e.g., sadness, anxiety) are differentially associated with CM alcohol use and that positive affect states (e.g., happiness, euphoria) are differentially associated with enhancement-motivated drinking. A growing body of research using experimentally

induced mood states provides support for these general predictions. For example, Grant, Stewart, and Birch (in press) set out to determine the selective information processing of alcohol targets among EM and CM drinkers. They identified subgroups of "pure" EM drinkers and CM drinkers who use alcohol to deal with anxiety specifically, as signified by scores on EM higher than one standard deviation above the mean of their screening sample and scores on CM-anxiety less than or equal to the median score, and vice-versa. In this study, 25 EM and 18 CM-anxiety drinkers were exposed to a positive or anxious musical mood induction, and took part in a Stroop task assessing implicit cognitions about alcohol. The Stroop task consisted of trials containing both alcohol-related targets and clothing-related (i.e. control) targets. In this study, CM-anxiety drinkers, when induced with an anxious mood state, took longer to name the colour of alcohol-related target words, which suggests that participants were differentially processing the alcohol cues, relative to control stimuli. Additionally, EM drinkers experiencing positive mood also demonstrated this interference effect of alcohol cues on the task (Grant et al, in press).

As a second example, Birch and her colleagues (2004) demonstrated that variation in alcohol expectancies among CM and EM drinkers was differentially primed across mood states. This study again identified "pure" internally motivated drinkers and then primed participants for either positive or negative mood states. CM drinkers showed increases in positive drinking expectancies when primed by a negative mood state, while EM drinkers showed increases in the strength of their positive drinking expectancies when primed by a positive mood state. This work demonstrates differential sensitivity to positive and negative affect among EM and CM drinkers, respectively (2004). Taken

together, the results of these two studies confirm that affect can influence alcohol-related cognitions in different ways for drinkers who are typically motivated to use alcohol to cope with negative emotions or to enhance experiences.

Limitations of work to date. The preceding studies have done much to advance our understanding of alcohol consumption motivated primarily by changes in intrapsychic states. However, there are several limitations of research conducted to date that set the stage for the present study. First, Stewart and colleagues' work to date can be questioned on grounds of ecological validity. Specifically, their research has used predominantly cross-sectional surveys and experimental priming paradigms. Consequently, little is known about how CM and EM drinking unfolds in the daily lives of student drinkers. This work does not address, for example, the unique antecedents of days in which CM and EM are most strongly endorsed.

Work to date has characterized CM and EM and subsequent alcohol use from a *personological* perspective. This is because Stewart et al.'s procedures are specifically designed to select a small number of "pure" CM drinkers and EM drinkers, using statistical criteria, from the general university drinking population for subsequent experimental studies. For example, Birch et al. (2004) followed the classification procedure used by Stewart, Hall, Wilkie, and Birch (2002) and identified either CM or EM student drinkers if their highest score was on either the CM or EM drinking motives subscale, and if that score was at least one standard deviation above the median score for all participants. Grant and colleagues (Grant et al., in press; Grant & Stewart, 2007) used more stringent statistical criteria and further required that participants' scores on the second intrapsychic drinking motive (CM or EM) be below the median scores for that

subscale, resulting in a CM-anxiety group representing just 3.8 percent of 789 undergraduate drinkers, and an EM group representing just 6.2 percent of students who use alcohol.

While these procedures provide a way to identify subtypes of drinkers who most frequently report using alcohol to enhance experience or cope with negative affect, they are less helpful for developing more inclusive models describing antecedents of CM and EM drinking days per se. This raises the possibility that a single CM or EM drinking episode, whether undertaken by an individual who is a "pure" CM or EM drinker or by an individual who does not meet these stringent statistical criteria, may be markedly different from the typical behaviour of a CM or an EM drinker.

Toward Daily Process Models of Intrapsychically-Motivated Drinking

"I feel sorry for people who don't drink. When they wake up in the morning, that's as good as they're going to feel all day." (Frank Sinatra)

In contrast to the personological approach described above, a growing body of alcohol research using daily process methods confirms that situational factors may be key antecedents of drinking behaviour. For example, Mohr and colleagues (2005) documented the importance of daily fluctuations in mood and daily amount of time spent with friends and others on drinking behaviours, including drinking to enhance experience. In two studies, Mohr et al. (2001; 2005) explored university students' typical drinking motives, daily mood, and social contacts. Negative affect and contacts in social situations during the day predicted drinking in the evening, while positive affect and positive social interactions predicted evening drinking outside of the home or in social situations. These findings indicate the importance of assessing daily positive or negative affect to understand how drinking behaviour unfolds over time.

Park, Armeli, and Tennen (2004) reported similar relationships between daily positive and negative affect and drinking; other predictors of drinking in this study included lower problem-focused coping and average negative mood across a period of 27 days. Similar results have been reported in non-student populations, as well: Carney et al. (2000) noted that both positive and negative daily events in the workplace correspond with increases in self-reported desire to drink and actual drinking behaviour. Armeli et al. (2005) reported that students were more likely to drink on evenings when afternoon outcomes of alcohol use were viewed as more attractive.

Hussong, Galloway, and Feagans (2005) examined the moderating effect of coping motives on daily mood and alcohol use. College student participants ($N = 72$) recorded alcohol use and current affect when prompted by a pager three times daily over a period of 28 days. Results were somewhat surprising given the extant theoretical accounts of CM drinking reviewed earlier. For example, Hussong et al. (2005) found that students scoring high on CM actually reported reduced alcohol consumption on days in which sadness was experienced. Other findings, such as an increased likelihood of alcohol use in the face of increased fear and shyness among CM drinkers, were more consistent with expectations. This research shows the importance of understanding as clearly as possible daily variations in mood and the possible moderating impact of other factors on the relation of mood to drinking behaviour. Nevertheless, Hussong et al.'s (2005) mixed findings also suggest that alternative outcome variables may be needed to fully understand the nature of the intrapsychic drinking motives. An assessment of alcohol consumption alone may not be sufficient to explain drinking behaviour. We

propose that introducing CM and EM motives as outcomes in their own right may prove useful in understanding daily relationships between mood and drinking behaviour.

The importance of studying internally motivated drinking *occasions* is also supported by data showing that many individuals who drink for CM reasons also drink for EM reasons (Cooper et al., 1995). From a population perspective, the behaviour of small subsamples of "pure" CM or EM drinkers as studied by Stewart and her colleagues may not represent the typical patterning of intrapsychically-motivated drinking behaviour over time among individuals who sometimes drink for CM purposes but who, on other days, might drink for EM purposes, or because of one of the other two drinking motives. This implies that it would be helpful to test models that *differentially* predict when CM versus EM drinking occasions are likely to occur. Unfortunately, no research to date has examined the issue of motive specificity in the prediction of alcohol use in daily life. To address this issue, it is proposed that different configurations of trait and daily antecedents are involved in CM drinking days as opposed to EM drinking days.

We know that daily mood influences alcohol consumption, but presently lack a clear understanding of how positive and negative affect relates to CM and EM drinking days. This understanding may be improved by the inclusion of moderating variables, such as task accomplishment, which refers to the degree to which one has completed one's daily responsibilities. The strength of the relationship between situation variations in mood and daily task accomplishment may be moderated by personality traits. If such associations are observed, then relying exclusively on between-subjects relationships and aggregate survey measures not structured in time will fail to reveal day-to-day variations in alcohol use. For this reason, the present study integrates research on traits and research

on more variable daily factors with the goal of predicting EM drinking, with a contrasting model for CM drinking. Daily affect, task accomplishment, and the college environment can interact with more stable trait factors to promote or decrease the occurrence of drinking. Hence, it is proposed that certain traits (sensation seeking and conscientiousness), in combination with daily factors, will predict alcohol use better than personality factors or daily factors alone.

The Present Models

Drinking motives research typically examines alcohol consumption measures (quantity and frequency) as the primary outcome variables, with motives conceptualized as moderating variables (see, for example, Armeli, Todd, & Mohr, 2005; Hussong et al., 2005; Mohr et al., 2005). In contrast, the present study assessed strength of endorsement of intrapsychic drinking motives on days where alcohol was consumed. From this perspective, we have shifted from a model which considers the person as the unit of analysis to one in which daily events are the units of analysis.

Sensation seeking and conscientiousness are particularly important to the proposed conception of enhancement-motivated drinking. Sensation seeking, a drive for new and varied experiences, has been shown to predict alcohol use (Zuckerman, 1994). In the alcohol literature, sensation seeking is linked to high levels of positive alcohol outcome expectancies, low levels of negative heavy drinking expectancies, and higher scores on a measure of disordered alcohol use (Katz, Fromme, & D'Amico, 2000; Sher, Bartholow, & Wood, 2000). There is also evidence that sensation seeking can predict EM drinking, and thus it is a part of model testing in the present study (Cooper et al., 2005). It is perhaps just as important to note that sensation seeking has not been shown to

relate to coping, social, or conformity motives for alcohol use, and so we do not expect sensation seeking to predict coping-motivated drinking days (Comeau, Stewart, & Loba, 2001; Read et al., 2003). From this perspective, drinking among sensation seekers can be construed as a behaviour that facilitates the abandonment of self-control and the pursuit of intensified emotional experiences, which helps to explain its potentially exclusive relationship with EM drinking days. Such behaviours may be instigated by the experience of boredom, irritation, or disappointment (Tsuang, Boor, & Fleming, 1985). The role of sensation seeking in alcohol use was also explored by Magid, MacLean, and Colder (2007), who found that drinking to enhance experience mediated the relationship between sensation seeking and alcohol use.

Conscientiousness also matters in alcohol research on university undergraduates, with lower conscientiousness predicting higher alcohol use (Theakston et al., 2004). There is evidence that EM drinking is associated with low levels of conscientiousness (Stewart & Devine, 2000; Stewart, Loughlin, & Rhyno, 2001; Theakson et al., 2004). A conscientious form of EM drinking may manifest itself as appropriate management of one's need to enhance their everyday experience: those who are conscientious may choose to drink only on days in which the potential drawbacks of drinking (for example, not completing homework) are minimized (see also Rolison & Scherman, 2003).

Yet, the dispositional contributions of conscientiousness and sensation seeking may not explain all of the daily variability observed in intrapsychically motivated alcohol use. Situational factors may be necessary to explain daily fluctuations in EM and CM drinking occasions. What are important daily factors that predict drinking behaviours among university students over time? We contend that daily variations in mood and task

accomplishment fill some important gaps in arti[redacted] an integrative model of drinking to change intrapsychic states.

One important daily situational variable may be daily task accomplishment, i.e., the completion of day-to-day responsibilities. Daily task accomplishment, then, may influence the expression of intrapsychic drinking motives. Task accomplishment can be assessed by asking participants whether they have finished their schoolwork, housework, and other chores each day. It appears that the role of task completion has failed to receive research attention. Those individuals who choose to "take care of business" before drinking can be perceived as having engaged in a form of harm reduction involving learning to plan drinking occasions to avoid negative outcomes stemming from their drinking.

Many students are careful about their drinking, and drink at times when the risk of hurting their other activities is minimized. This may be an adaptive feature of student drinking that is overlooked in much of the literature. To assess this construct, the present study introduced a measure of daily task accomplishment. Planning for drinking that does not interfere with one's responsibilities, representing a more conscientious form of drinking, was suggested based on the outcomes of Magid and colleagues' research (2007), but has not been examined in the literature to date. We suggest that the amount of work and other responsibilities accomplished each day may predict daily drinking to enhance experience. This task accomplishment might also be related to baseline sensation seeking and conscientiousness, and thus the interactions with these factors were investigated, as well. Among our more conscientious participants in particular, on days

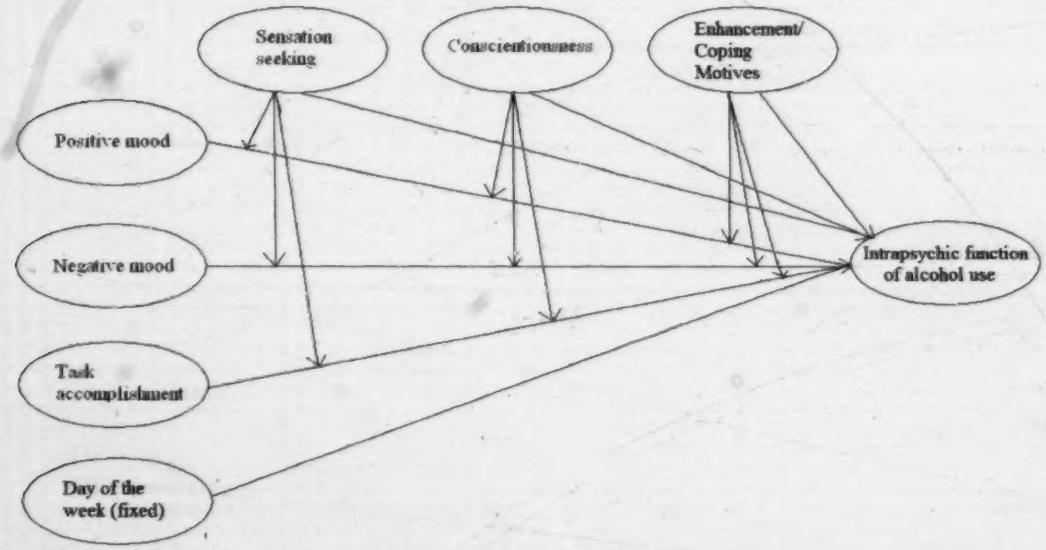
when task completion scores are high, we will expect to see increased EM drinking and possibly increased CM drinking as well.

We can conceive that individuals who are more conscientious will demonstrate both higher levels of task accomplishment overall and a greater likelihood of internally motivated drinking on days when they have accounted for their daily responsibilities. Yet, sensation seeking may conflict with conscientiousness, and so task accomplishment may also serve as a means of weighing and balancing this conflict. The report of drinking by a high sensation seeker who has not accomplished their daily tasks tells us about the nature of this relationship. Thus, trait sensation seeking and trait conscientiousness are potentially the crucible within which situational factors exert their effects on intrapsychically motivated drinking.

Dependent Variables. We have moved conceptually toward a different type of outcome variable than has traditionally been used in the alcohol literature. While the drinking motives literature focuses on predicting quantity and frequency of alcohol use per se, the goal of the present study is to identify factors predicting the strength of EM and CM drinking episodes. Thus, instead of predicting whether or not alcohol was consumed, or amount consumed per drinking day, the present study predicted the extent to which drinking days were motivated by enhancement and coping motives. The general model used to predict intrapsychically-motivated drinking displayed in Figure 1 posits that both between-subjects traits and daily situational factors influence students' daily decisions to use alcohol for EM or CM purposes. Specifically, between subjects trait variables (sensation seeking and conscientiousness) moderate the effects of daily mood and task accomplishment on intrapsychically motivated alcohol use. Hence, this

project integrated environmental and dispositional factors within a more inclusive model of drinking.

Figure 1. *Model of Intrapsychic Functions of Alcohol Use.*



Of particular interest in this study was the issue of *motive specificity*, i.e., testing whether associations between situational (mood, task accomplishment) and trait (sensation seeking, conscientiousness) correlates of alcohol use are expressed differently on EM versus CM drinking days. Thus, we compared the ability of the constructs depicted in Figure 1 to predict EM drinking days and to predict CM drinking days. By using the *same* analytic approach for each type of drinking day and by using the same predictor variables in each model, the study attempted to determine whether *different* direct and trait-moderated effects of situational variables would occur on EM versus CM drinking days. No *a priori* predictions were made about the extent to which EM and CM drinking episodes would be differentially associated with daily events as opposed to trait

characteristics. Instead, on the basis of previous research demonstrating associations between negative affect and coping drinking (Mohr et al., 2005), only two relationships were predicted: on days where students consumed alcohol, (1) daily negative mood was anticipated to predict strength of CM drinking, and (2) daily positive mood was expected to be inversely related to daily coping-motivated drinking.

CHAPTER 2: METHOD

Overview

Participants were Introductory Psychology (Psychology 104/105) students at the University of Alberta who completed a three-part study in exchange for course credit. Part 1 was a screening survey designed to assess students' drinking status and motivations for alcohol use. In Part 2, screened participants completed baseline measures assessing demographics, sensation seeking, conscientiousness, and typical alcohol use. Finally, in Part 3, baseline participants completed a daily diary study for which they were asked to record on each day over a 14 day period, their mood, task accomplishment behaviours, whether or not alcohol was consumed, and on days where drinking occurred, why they used alcohol (i.e., their drinking motives on that day). Students received one experiment credit for their participation in the baseline survey and a further credit for completing at least one diary during the fourteen days of the daily diary study.

Sample and Procedure

Part 1: Screening survey. Mass testing sessions were at the beginning of Fall Semester 2005 and Winter Semester 2006. The majority of participants in the Introductory Psychology research pool completed surveys from each of several research labs within the Department of Psychology during class. Measures assessed current drinking status (drinker/non-drinker) and typical motives for engaging in alcohol use. To assess current drinking status, respondents were asked to respond "yes" or "no" to whether they had consumed alcohol in the past twelve months (Adlaf et al., 2005). To assess drinking motives, Cooper's (1994) Drinking Motives Questionnaire (DMQ) was used. Cooper et al. (1994) formulated the twenty-item Drinking Motives Questionnaire (DMQ) to assess drinking to enhance experience ($\alpha = 0.88$, among the screening survey

participants) and drinking to cope with negative affect ($\alpha = 0.80$). A total of 1626 drinkers (42% males; *M* age = 19.35 years) participated in the screening survey. These individuals[1] became eligible to participate in the next two parts of the study.

Part 2: Baseline assessment. One hundred and fifty three Introductory Psychology students completed the initial baseline assessment. Participants completed the baseline survey package in groups of up to 60 people. They were told that the research was concerned with relationships between task completion, personality, mood and alcohol use. Next, participants were (1) given a summary of the research procedures, (2) informed of the precautions taken by the researchers regarding anonymity and confidentiality, (3) advised of the continuing voluntariness of their participation and their option to leave blank any or all items, and (4) asked to provide informed consent by signing a consent form (see Appendix A). If they consented to participate, participants provided demographic information, completed the baseline questionnaire package, and were invited to participate in a daily diary study.

Part 3: Daily diaries. All participants who completed the baseline assessment study were then invited to participate in a diary study. They were given a password to log on to the study website as well as an individual ID code and were asked to fill out the diary over a self-chosen span of fourteen evenings. Participants were informed that the preference was for them to submit the diary in the evening after 5:00 p.m. but that responses would be accepted from noon on the day of the study until the following day at noon. All responses sent after 12:00 p.m. (noon) would count as the following day's diary

[1] The first opportunity to sign up online and participate further was given to those scoring higher on drinking to enhance, in order to increase the number of enhancement drinking occasions that would occur during the daily diary period.

submission. Participants were also encouraged to e-mail the researchers at any time with comments or questions about their participation.

Baseline Measures

Baseline assessment (Appendix B) included (1) demographics (age, gender, ethnicity, year in university, and living arrangements), (2) conscientiousness, (3) sensation seeking, (4) typical drinking motives and (5) drinking habits.

A total of 81 respondents formed the "study sample." The requirements were that they provide data for at least one day of the daily diary and complete baseline information.

To assess *conscientiousness*, the conscientiousness subscale of the NEO Five Factor Inventory - Revised, Short Form (Costa & McCrae, 1989) was used[2]. This 12-item measure assesses level of conscientiousness demonstrated by each individual (α = 0.85 in the initial sample and α = .86 in the study sample). The measure includes twelve items, such as "I am a productive person who always gets the job done." Individuals who are low in conscientiousness may be less likely to meet their goals successful. The scale has evidence for convergent and discriminant validity (Costa & McCrae, 1989).

To assess *sensation seeking*, Zuckerman's (1994) Sensation Seeking Scale Form V was used (see Appendix C). This instrument includes 40 items that give participants the opportunity to select one of two competing statements, one that reflects tendencies to engage in sensation seeking. The measure has four subscales, thrill and adventure-seeking (the desire to engage in fast-paced or dangerous behaviours), experience seeking (the desire for novel and varied experiences), disinhibition (the desire to "let loose," often through partying or through sexual experiences), and boredom susceptibility (dislike of

[2] Scale is protected by copyright and is not reproduced here.

repetition and an impatience toward unchanging situations; Zuckerman, Eysenck, & Eysenck, 1978). In the present study, aggregate sensation seeking scale scores were used ($\alpha = 0.77$ in the initial sample; $\alpha = 0.80$ in the study sample).

Typical intrapsychic drinking motives were assessed using the EM and CM subscales from the Drinking Motives Questionnaire (Cooper, 1994; see Appendix D). A sample item from the EM drinking scale is drinking alcohol "because you like the feeling;" reliability in the study sample was $\alpha = 0.90$. A sample item from the CM drinking scale is consuming alcohol "to forget your worries;" reliability in the study sample was $\alpha = 0.87$.

Assessment of alcohol consumption and alcohol problems was assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993; see Appendix E). Reliability of the scale in the present study was .83. The AUDIT screening tool aims to identify individuals with high-risk, problematic drinking that may lead to (or might have already resulted in) negative consequences or alcohol dependence, and the items included on the scale can also provide information on more general consumption patterns. The mean score on the AUDIT was 7.77. The criterion for risky levels of alcohol use (i.e., potentially problem drinking) is a score of 8 or higher out of a possible score of 40 on the AUDIT, as per the published recommendation for the optimal balance of sensitivity and specificity (Babor, de la Fuente, Saunders, & Grant, 1992). A study of undergraduate students (Skipsey, Burleson, & Kranzler, unpublished, as cited in Allen et al., 1997) found that while 94 percent of problem drinkers were identified, 44 percent of those classified as problem drinkers were "false positives" who did not have a drinking problem. The false positive rate for students

is higher than the rate for other populations studied (1997). However, the cutoff score of eight may still be used with the knowledge that, as a screening tool and not as an all-or-none diagnostic instrument, it can quite effectively identify risky or problematic levels of drinking (Babor et al., 1992). Thus, approximately one-half of our participants could be classified as potentially risky drinkers.

Daily Diary Measures

Each day for up to 14 consecutive days, participants logged on to the website www.surveymonkey.com using their password, filled in their individual ID code, and listed the date and time of completion. Next, participants completed measures assessing (1) mood, (2) task accomplishment, (3) whether they consumed alcohol, number of drinks, and level of intoxication and (4) internal drinking motives for each drinking occasion.

Mood. To assess daily mood, the Positive and Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988; see Appendix F) was used. This 20 item instrument assesses positive and negative affect. High levels of positive affect refer to a pleasurable state in which one feels active and enthusiastic, whereas low levels of positive affect reflect sadness and low energy. In contrast, negative affect comprises feelings of anger, fear, and other negative emotions, while low levels of negative affect reflect feelings of calmness and peace. There are typically only meager correlations between negative and positive affect, which reflects the distinctiveness of the two constructs. In the present study, the correlation between the two subscales was $r = -.07, p > .05$ on Day 1, $r = 0.10$, $p > .05$ on Day 7, and $r = -.15, p > .05$ on Day 14.

Participants were asked to rate their level of agreement with twenty possible mood states for the day (such as alert, distressed, and determined) on a scale of "very slightly or not at all" to "very much." Total scores were used for a positive affect subscale and a negative affect subscale. Single-day reliabilities were calculated at three time points during the study: on Day 1, Day 7, and Day 14. Internal consistency estimates for positive affect were 0.88, 0.88, and 0.91, respectively, while alphas for negative affect were 0.77, 0.85, and 0.89.

Task accomplishment. The task accomplishment measure was developed from a pool of ten items created specifically for this study. Two of the ten items diminished Cronbach's alpha and had low item-total correlations, and for those reasons were deleted from the scale (see Appendix G for the item analysis and Appendix H for the resulting scale). Sample scale items are 'I managed to finish the things I needed to finish before the end of today,' and 'I did as much as I should have done today to meet the deadlines I am facing during the next week.' Response options range from "strongly disagree" to "strongly agree." Alphas for the 8-item scale were 0.90 on Day 1, 0.88 on Day 2, and 0.89 on Day 14.

Alcohol Use. Participants were asked whether or not they drank alcohol on a given day, the number of drinks consumed if it was a drinking day, and their subjective level of intoxication (from "not at all intoxicated" to "very intoxicated"). These are standard questions in the alcohol literature (for example, similar questions were used by Viken et al., 2003, Hussong et al., 2005, and Park et al., 2004).

Outcome Measures

Daily enhancement-motivated drinking and *daily drinking to cope* were assessed using the enhancement and coping subscale items drawn from the Drinking Motives Questionnaire (Cooper, 1994), modified to ask about reasons for consuming alcohol on that particular day. These items were only completed on days when participants indicated that they had consumed alcohol. Reliability for the drinking to enhance experience subscale was 0.92 on Day 1, while it was 0.97 on Day 7. Reliability for the drinking to cope subscale was 0.93 on Day 1 and 0.86 on Day 7.

CHAPTER 3

SAMPLE DESCRIPTION AND DATA ANALYSIS

Description of the Sample

From an initial sample of 153 drinkers, 81 individuals (44.4% males) provided complete baseline data as well as one or more daily diary entries, both of which are required to conduct analyses using hierarchical linear modeling (HLM). Table 1 presents mean scores on key baseline variables for the complete sample of 153 participants and the study sample of 81 participants. The two sample groups were equivalent in terms of both demographics and key study variables. That is, there do not appear to be any differences between those participants who provided full baseline data plus at least one diary and those participants who failed to provide sufficient information to meet criteria to be included in the analytic study sample.

Participants in the study sample ($n = 81$) ranged in age from 19 to 42, and the average age of participants was 21.5 years ($SD = 25$). With respect to ethnicity, 34.6% self-identified as Euro-North American, 23.5% as East Asian, 18.5% as European, and the remaining participants as African (3.7%), South Asian (2.5%), First Nations (1.2%), Middle Eastern (1.2%), and "Other" (14.8%). The majority of participants (65.5%) were in their first year of university studies, with a range from first year to fifth year. Nearly two-thirds (61.7%) lived at home with one or more parents, while a further 18.5% lived in a university residence, with the remainder primarily residing in shared accommodations. There were no significant differences between the initial sample and the study sample on key variables. The number of participants who completed each day of the two-week study is presented in Table 2.

Table 1

Initial sample and study sample's mean scores on baseline variables

Variable	Initial Sample[a]	Study Sample[b]	t or χ^2
Current Age	21.43	21.47	t = -0.14
Gender	35%[c]	44%[c]	χ^2 = 1.41
Year in university	1.61	1.49	t = -0.97
Sensation seeking	19.69	20.88	t = -1.45
Conscientiousness	42.28	42.32	t = 0.04
Drink to enhance experience	2.90	2.90	t = 0.04
Drink to cope	1.82	1.82	t = 0.04

Note. [a]*n*=153; [b]*n*=81; [c]Percent male.

Baseline Measures

Descriptive statistics, gender differences, and bivariate analyses. As displayed in Table 3, gender and age did not relate to the key baseline variables in the present study. There were gender differences in baseline conscientiousness ($r = 0.27, p < .05$), indicating that females in general were more conscientious ($M = 43.98$) than males ($M = 40.25$). There were no other gender differences on the study variables of interest. Consequently, subsequent analyses collapsed the study sample across participant sex. In terms of the study variables, enhancement motive scores were positively correlated with sensation seeking ($r = 0.43, p < .01$), while sensation seeking and conscientiousness were inversely related ($r = -0.26, p < .05$). Coping motive scores were also related to sensation seeking

Table 2

Number of participants who completed each day of the diary study and reported drinking on each day

	Study Day Number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Diaries completed	78	75	71	69	68	66	61	57	52	48	43	37	28	15
% of study sample	96	93	88	85	84	81	75	70	64	59	53	46	35	19
Reports of drinking	8	9	13	10	6	4	7	4	9	10	7	1	1	0
% of study sample	10.3	12.0	18.3	14.5	8.8	6.1	11.5	7.0	17.3	20.8	16.3	2.7	3.6	0

($r = 0.33$, $p < .01$), but not to conscientiousness ($r = -0.12$, $p > .05$). Moreover, enhancement and coping motives were related ($r = -0.54$, $p < .01$).

Relationships of drinking motives with alcohol use. We explored the between-subjects relationship between drinking motives and scores on the AUDIT, as well as three subscales: consumption, dependence, and negative alcohol-related consequences. As displayed in Table 4, higher scores on each drinking motive related to higher scores on the AUDIT. In addition, the four drinking motives each related to the three subscales, with the exception of the social motive and negative consequences, which were not correlated.

Daily Measures

Means and correlations of daily diary variables across the study period are presented in Table 5. With respect to sex differences among the daily diary variables, there were no gender differences on enhancement and coping motive scores, nor were there any differences for positive affect. Aggregated across all diary days, females reported more negative affect on a daily basis, however ($M = 17.76$) than did males ($M = 16.83$; $t = -1.98$, $p < .05$).

Of note, daily task accomplishment was positively correlated with daily positive affect ($r = .30$, $p < .01$) and was inversely correlated with daily negative affect ($r = -.11$, $p < .05$), but was uncorrelated with the drinking-related variables among the study sample. Daily positive affect correlated with daily endorsement of enhancement motives ($r = 0.22$), whereas daily negative affect correlated with daily endorsement of coping drinking motives ($r = 0.54$, $p < .01$).

Table 3

Means and correlations among study variables.

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Year of birth	85.56	-.14	.20	.07	.04	.12	-.16	.01	-.11	.11
2.	Gender		.56	-.15	-.03	-.11	-.08	.05	-.12	.27*	-.04
3.	Social motive			3.40	.47**	.61**	.57**	-.55**	.43**	-.07	.52**
4.	Coping motive				1.82	.56**	.39**	-.46**	.33**	-.07	.40**
5.	Enhancement motive					2.90	.38**	-.45**	.43**	.01	.50**
6.	Conformity motive						1.57	-.23*	.28*	-.14	.36**
7.	Negative drinking consequences							27.64	-.45**	.11	-.83**
8.	Sensation seeking								20.88	-.26*	.46**
9.	Conscientiousness									-.12	-.08
10.	AUDIT score										7.77

Note: Means displayed on the diagonal; * $p<.05$. ** $p<.01$.

Table 4.

Means and correlations of baseline drinking motives and AUDIT measures.

	1.	2.	3.	4.	5.	6.	7.	8.
1. AUDIT score	7.77	0.81**	0.83**	0.75**	0.52**	0.39**	0.54**	0.32**
2. Consumption subscale		4.56	0.53**	0.35**	0.51**	0.44**	0.51**	0.23*
3. Dependence subscale			0.94	0.56**	0.41**	0.24*	0.47**	0.28*
4. Consequences subscale				1.01	0.30**	0.20	0.26*	0.28*
5. Coping motive					1.82	0.47**	0.61**	0.55**
6. Social motive						3.40	0.55**	0.41**
7. Enhancement motive							2.90	0.36**
8. Conformity motive								1.57

Note. *N*s range from 79 to 81; Means displayed on the diagonal.

Table 5

Means and correlations of daily diary measures.

		1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	Day of the week	4.05	-.07	-.09*	-.09*	-.09*	.24*	.24*	.10	-.06
2.	Positive emotions		24.76	-.13**	.30**	-.10**	.22*	.21	-.01	.03
3.	Negative emotions			17.34	-.11*	-.16**	.12	.04	.54**	.28*
4.	Task accomplishment				22.00	-.07	-.04	.06	-.08	-.21
5.	Desire to drink					18.31	-.40**	-.46**	-.48**	-.18
6.	Drink to enhance						12.34	.73**	.45**	.35**
7.	Drink to be social							12.61	.40**	.43**
8.	Drink to cope								8.52	.42**
9.	Drink to conform									6.71

Note. *N*s range from 81 to 754; Means across all 14 days displayed on the diagonal.

Table 6

Means and correlations of daily diary measures on drinking days.

		1.	2.	3.	4.	5.	6.	7.	8.	9.
1.	Day of the week	5.23	-.14	-.15	-.00	-.11	.24*	.25*	-.08	-.06
2.	Positive emotions		27.80	-.18	.15	.03	.23*	.23*	.03	.04
3.	Negative emotions			17.23	-.20	-.21	.09	.02	.52**	.26*
4.	Task accomplishment				6.63	-.14	-.04	.07	-.05	-.21
5.	Desire to drink					11.09	-.39**	-.46**	-.48**	-.16
6.	Drink to enhance						12.31	.72**	.43**	.34**
7.	Drink to be social							12.57	.38**	.42**
8.	Drink to cope								8.40	.40**
9.	Drink to conform									6.70

Note. Ns range from 79 to 89; Means across all 14 days displayed on the diagonal.

Correlations were also performed using only those days in which alcohol was consumed (n = 89), as reported in Table 6. On drinking days, positive affect correlated with enhancement-motivated drinking scores ($r = 0.23$, $p < .05$) and negative affect correlated with drinking to cope ($r = 0.52$, $p < .01$). EM drinking scores also correlated with subjective level of intoxication, while CM scores correlated with increased negative mood. While Table 6 shows the relation of the drinking motives to alcohol-related variables, the models in our study will be used to predict each of the two motives of interest.

In terms of drinking motives on the 89 drinking days, participants rated EM as their most heavily endorsed motive for using alcohol (or equally strong as another motive) on 40 occasions (44.9 percent of drinking days), and CM drinking on 23 occasions (25.8 percent of drinking days), as shown in Table 7. In comparison, social motives were the strongest (or equally strong) drinking motive on 45 of the 89 drinking occasions (50.6 percent), while the conformity motive was rated most strongly on 3 drinking occasions (3.4 percent).

Table 7

Percent of drinking days attributed to each motive

Motive	Percent of drinking days
Enhancement	44.94
Coping	25.80
Social	50.56
Conformity	3.37

Multilevel Regression Analyses

Variability in daily events (i.e., affect, task accomplishment) that may influence drinking was, in combination with more stable characteristics, assessed using multilevel modeling (Raudenbush & Bryk, 2002). Day of the week was modeled as a fixed effect for the purpose of accounting for differences in alcohol use that occur as a direct result of the day of the week (Carney et al., 2000). The assessment of daily covariation in experiences (positive and negative affect and task accomplishment) represented the Level 1 variables. Level 2 (between-subjects) variables consisted of conscientiousness, sensation seeking, and baseline scores on EM or CM drinking, depending on the outcome variable. Table 8, following, presents the variables used in the analyses.

General analytic strategy. Daily entries recorded by participants into the online system were considered nested within individual respondents. Use of a hierarchical model is ideally suited to this situation in that it permits the modeling of cross-level effects (Raudenbush & Bryk, 2002). For example, HLM allows us to examine the possible effects of sensation seeking, a Level 2 variable, on patterns of enhancement-motivated alcohol use depending on daily mood, a Level 1 variable. In this way, variations at one level are proposed to affect variations at another level of analysis. HLM uses a within-subjects model and a between-subjects model. Level 1 of HLM is the within-subjects model and Level 2 is the between-subjects model. Continuous predictors were grand-mean centered (Raudenbush & Bryk, 2002). HLM reveals the degree of variation in effects across groups, whether these effects depend on baseline characteristics such as gender, and whether the slopes vary significantly across groups, which may or may not be due to Level 2 factors (Ma, 2004).

Table 8

Variables Used in Multilevel Regression Analyses

	Status
Within-Subjects Predictor Variables (Level 1)	
Daily positive mood	Continuous independent variable
Daily negative mood	Continuous independent variable
Daily task accomplishment	Continuous independent variable
Between-Subjects Predictor Variables (Level 2)	
Conscientiousness (scale score)	Continuous independent variable Moderator variable
Sensation seeking (scale score)	Continuous independent variable Moderator variable
Typical enhancement-motivated drinking (scale score)	Continuous independent variable Moderator variable
Typical coping-motivated drinking (scale score)	Continuous independent variable Moderator variable
Outcome Variables	
Daily enhancement-motivated drinking	Continuous outcome measure
Daily coping-motivated drinking	Continuous outcome measure

The general analytic strategy was to use the same Level 1 (daily) and Level 2 (between-subjects) predictors to model each of the two outcome variables described in Table 7. Thus, for each outcome measure predictors at Level 1 were diary measures assessing daily positive and negative affect, daily task accomplishment, and either typical drinking to enhance experience or typical drinking to cope with negative affect,

depending on the model of internal drinking motives. Predictors at Level 2 were baseline measures assessing conscientiousness, sensation seeking, and either typical enhancement or coping motives. The outcome variables were daily enhancement-motivated drinking, the primary model of interest, and a contrasting model, coping-motivated drinking. Hierarchical linear modeling was used to test each model (Raudenbush & Bryk, 2002).

Predicting Daily Outcomes

The model used in the present study is shown below.

Level 1 model: Outcome Variable = $\beta_0 + \beta_1$ (positive affect) + β_2 (negative affect) + β_3 (task accomplishment) + β_4 (day of the week) + υ_{ji} (1)

Level 2 model: $\beta_0 = \gamma_{oo} + \upsilon_{oj}$

$\beta_1 = \gamma_{01} + \gamma_{11}$ (sensation seeking) + γ_{12} (conscientiousness) + γ_{13} (typical enhancement or coping drinking motives) + υ_{j1}

$\beta_2 = \gamma_{02} + \gamma_{21}$ (sensation seeking) + γ_{22} (conscientiousness) + γ_{23} (typical enhancement or coping drinking motives) + υ_{j2}

$\beta_3 = \gamma_{03} + \gamma_{31}$ (sensation seeking) + γ_{32} (conscientiousness) + γ_{33} (typical enhancement or coping drinking motives) + υ_{j3}

$\beta_4 = \gamma_{04} + \gamma_{41}$ (sensation seeking) + γ_{42} (conscientiousness) + γ_{43} (typical enhancement or coping drinking motives) + υ_{j4}

Combined model: Outcome Variable$_{ij}$ = β_0 + [γ_0 + γ_4 (conscientiousness) + γ_5 (sensation seeking) + γ_6 (typical enhancement or coping drinking motives) + υ_{ji}][positive mood] + [γ_0 + γ_4 (conscientiousness) + γ_5 (sensation seeking) + γ_6 (enhancement/coping-motivated drinking) + υ_{ji}][negative mood] + [γ_0 + γ_4 (conscientiousness) + γ_5 (sensation

seeking) + γ_6 (enhancement/coping-motivated drinking) + υ_{ji}][task accomplishment] + [day of the week] + υ_{ji} (2)

The Level 1 model addresses questions such as, "on the days that people experience positive affect, are they more likely to drink to enhance experience?" Day of the week was modeled in each analysis as a fixed effect to account for day-to-day variations in alcohol use (Carney et al., 2000). The Level 1 model also tells us if there is sufficient random variation at Level 2 to justify modeling covariates at Level 2 as random, rather than fixed, effects. Interactions of baseline predictors with each of the individual within-subjects predictors were tested in the combined model (Equation 2). The between-subjects (Level 2) variables are predictors of average endorsement of the two intrapsychic drinking motives. When combined with the Level 1 variables, the combined model tells us about any dispositional predictors that may moderate the relationship between daily factors and the internal drinking motives outcome variable (EM or CM drinking). For example, perhaps sensation seeking interacts with mood such that high sensation seekers, when they experience higher levels of positive affect, will endorse EM drinking more than will low sensation seekers who experience positive affect.

Model specification. The HLM models predicting endorsement of EM and CM (i.e., days in which EM or CM was endorsed most strongly or as strongly as other motives for drinking) began with all relevant predictors and interaction terms. Once these were examined, each model was trimmed by excluding terms that failed to contribute to the outcome. In other words, predictors not accounting for statistically significant portions of variance in the outcome measures were removed sequentially, beginning with

the predictor with the largest *p* value, until only statistically significant predictors remained in the model, with the exception of those variables having one or more cross-level interactions (Ma, 2004).

CHAPTER 4

MULTILEVEL MODELING RESULTS

Predicting Endorsement of Daily Enhancement Drinking Motives

$$\text{Enhancement-Motivated Drinking} = \gamma_{00} + u_{0j} + e_{ij} \quad (3)$$

The null model determined average levels of EM drinking across the diary study period. The error term, e_{ij} reflects uncontrollable errors and is assumed to be both homogeneous and independent, meaning that each individual's residual is not related to another individual's residual. Equation 3, above, represents the amount of EM drinking for person *j* across *i* occasions, based on average enhancement motives across all of our participants, γ_{00}, and the random difference from the average, e_{ij}. The average level of EM drinking for participant *j* across *i* days was 12.18 ($SE = 0.76$, $t(77) = 15.91$, $p < .01$). Moreover, the null model revealed that 35.98 percent of the variance in the model is associated with within-subjects factors, while the remaining 64.02 percent of the model variance can be attributed to between-subjects factors.

Predictor terms were modeled on the intercepts, thus providing information about both the role of individual predictors and the cross-level interactions between Level 1 (daily) and Level 2 (trait) predictors. Day of the week was not tested for cross-level interactions because its role in the model was simply to help account for daily variations in drinking behaviours rather than serve as a moderator variable. Positive and negative affect were modeled as fixed effects because the conditional Level 1 model showed that there was no random variance remaining to be explained. The inclusion of individual predictors and cross-level interaction terms significantly improved the fit of the model ($\chi^2(8) = 61.65$, $p < .001$).

Results for the fully saturated model are presented in Table 9 and were the starting point in determining predictors of the strength of EM drinking on any given day. Nonsignificant predictors were sequentially eliminated to produce the final model shown in Table 10. Nonsignificant predictors were sequentially eliminated from analyses, with the exception of those variables having one or more cross-level interactions.

One daily (Level 1) predictor was included in the final model. On days that participants reported higher positive affect, they were also more likely to report drinking to enhance experience. Specifically, after controlling for day of the week and daily task accomplishment, on days where alcohol was consumed, a one-unit increase in daily positive affect was associated with an increase of 0.13 points in participants' ratings of the extent to which drinking was related to EM. Two between-subjects variables were included in the final model. Between subjects and across drinking days, typical enhancement motives and sensation seeking scores were positively related to daily drinking to enhance experience. Typical enhancement motives for alcohol use predicted a 2.88-point increase in daily EM ratings, controlling for sensation seeking. A one-unit increase in baseline sensation seeking, controlling for typical enhancement motives, corresponded to a 0.33-point increase in daily enhancement motive ratings.

These main effects of daily and between-subjects variables were qualified by two cross-level interactions included in the final model. First, controlling for the other predictor variables in the model, there was a cross-level interaction between daily task accomplishment and dispositional conscientiousness ($b = 0.03$; SE = 0.01, $t\,(78) = 3.33$, $p < .01$). Conscientiousness moderated the relationship between task accomplishment and strength of enhancement–motivated alcohol use on drinking days. As illustrated in Figure

Table 9

HLM Fully Saturated Model Predicting Daily Endorsement of EM.

	B
Daily Variables	
Day of the week (fixed)	0.27
Positive affect	0.08
Negative affect	0.08
Task accomplishment	-0.06
Between-Subjects Variables	
Typical enhancement motives	2.68**
Conscientiousness	0.13
Sensation seeking	0.29**
Cross-Level Interactions	
Positive affect x typical enhancement motives	0.04
Positive affect x conscientiousness	0.00
Positive affect x sensation seeking	0.01
Negative affect x typical enhancement motives	0.09
Negative affect x conscientiousness	-0.01
Negative affect x sensation seeking	-0.01
Task accomplishment x typical enhancement motives	-0.06
Task accomplishment x conscientiousness	0.04**
Task accomplishment x sensation seeking	0.04**

Note: * $p < .05$. ** $p < .01$.

Table 10

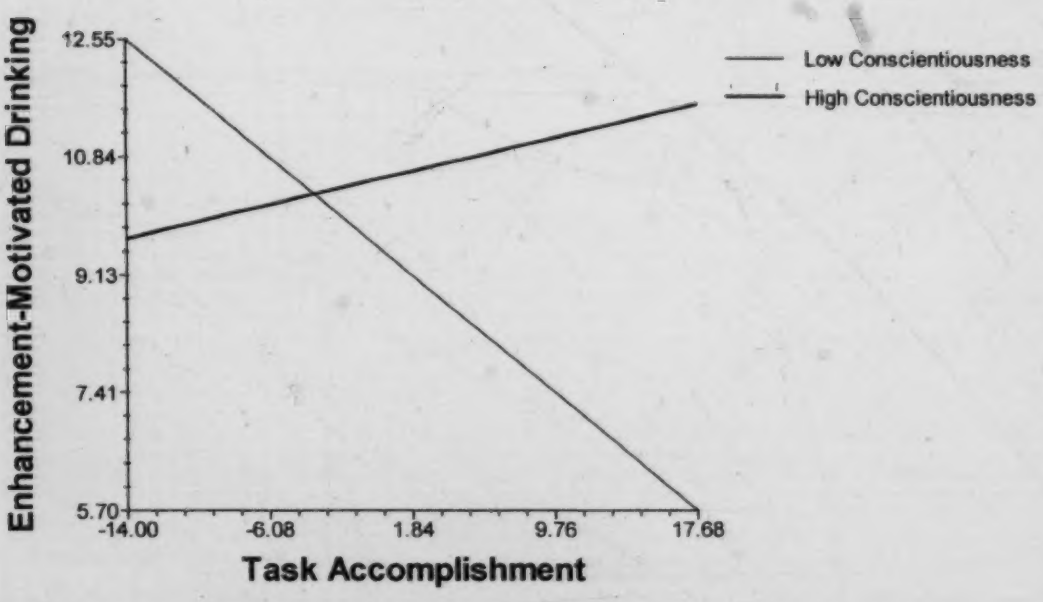
Final HLM Model Predicting Daily Endorsement of EM.

	B
Daily Variables	
Day of the week (fixed)	0.24
Positive affect	0.11*
Task accomplishment	-0.07
Between-Subjects Variables	
Typical enhancement motives	2.90**
Sensation seeking	0.36**
Conscientiousness	0.12
Cross-Level Interactions	
Task accomplishment x conscientiousness	0.03**
Task accomplishment x sensation seeking	0.04**

Note: * $p < .05$. ** $p < .01$.

2, there was a positive relationship between daily task accomplishment and daily drinking to enhance experience for highly trait-conscientious participants. In contrast, there was an inverse relationship between daily task accomplishment and daily endorsement of EM for participants exhibiting low trait conscientiousness. Less conscientious individuals were more likely than were more conscientious participants to engage in EM drinking when

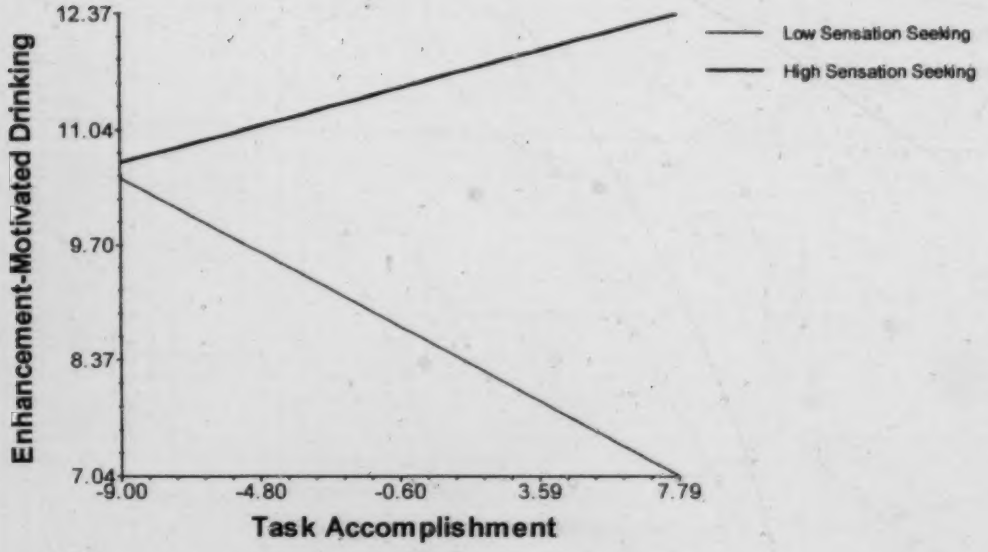
Figure 2. *Trait conscientiousness moderates the effect of daily task accomplishment on strength of daily enhancement-motivated drinking*



their daily task completion levels were low. However, when individuals completed their necessary tasks, conscientious participants became much more likely to endorse EM.

HLM results also indicated that the daily relationship between task accomplishment and enhancement motivated alcohol use was moderated by trait sensation seeking ($b = 0.03$, $SE = 0.01$, $t\,(78) = 3.0$, $p < .01$). Figure 3 shows that drinkers scoring both low and high on sensation seeking were equally likely to endorse the enhancement motive for their daily drinking when task accomplishment was low. As daily task accomplishment increased, however, high sensation seekers became more likely to report that their drinking was due to enhancement motives, while low sensation seekers became less likely to endorse the enhancement-drinking motive. Thus, on days in which tasks have been completed, sensation seekers are more likely to endorse EM.

Figure 3. *Trait sensation-seeking moderates the effect of daily task accomplishment on strength of daily enhancement-motivated drinking*



Predicting Daily Endorsement of CM

As a comparative model to our model of EM drinking ratings, we explored daily levels of CM ratings. Again, the null model determines average levels of drinking to cope across the diary period. Equation 5 represents the level of endorsement of coping-motivated drinking for person *j* across *i* occasions.

$$\text{Coping-Motivated Drinking} = \gamma_{00} + u_{0j} + e_{ij} \quad (5)$$

The average level of the coping motive for participant *j* across *i* days was 8.45 (SE = 0.61, t (77) = 13.85, $p < .01$). With respect to the variance in the model, 25.75 percent was due to within-subjects factors, while the remaining variance could be attributed to between-subjects factors.

Predictor terms were again modeled on the intercepts, and day of the week as well as positive and negative emotions was modeled as fixed effects. The inclusion of individual predictors and cross-level interaction terms significantly improved the fit of the model ($\chi^2(14) = 154.17, p < .001$). The fully saturated model as presented in Table 11 was trimmed by eliminating nonsignificant predictors one by one, which resulted in our final model (Table 12).

Two Level 1 predictors were included in the final model. On days when alcohol was consumed, daily positive affect was inversely related to daily CM ratings. Controlling for day of the week and task accomplishment, a one-unit increase in experiencing positive affect corresponded to a 0.08-point decrease in endorsement of the coping motive for drinking alcohol. A one-unit increase in daily negative affect, in comparison, corresponded to a 0.13 increase in coping-motivated drinking. One between-subjects variable, typical CM ratings, was retained in the final model. Typical CM for alcohol use predicted a 4.40-point increase in daily CM ratings. These main effects were qualified by three cross-level interactions. First, controlling for the other predictors, there was a cross-level interaction between daily positive affect and typical drinking to cope with negative affect ($b = -0.12$; SE = 0.05, $t(76) = -2.26$, $p < .05$). As shown in Figure 4, typical coping motives moderated the relationship between daily positive affect and daily endorsement of drinking to cope on days when alcohol was consumed. Specifically, participants who frequently drink to cope with negative affect reported higher ratings of coping motives for alcohol use on a daily basis, but became less likely to drink to cope as the level of daily positive emotions increased. In contrast, participants who do not typically drink to cope were less likely to engage in coping-

Table 11

HLM Fully Saturated Model Predicting Endorsement of Daily Coping Motives.

	B
Daily Variables	
Day of the week	0.07
Positive affect	-0.08
Negative affect	0.15
Task accomplishment	0.01
Between-Subjects Variables	
Coping motives	4.04**
Conscientiousness	0.13*
Sensation seeking	0.13
Cross-Level Interactions	
Positive affect x typical coping motives	-0.02
Positive affect x conscientiousness	0.00
Positive affect x sensation seeking	0.00
Negative affect x typical coping motives	0.17*
Negative affect x conscientiousness	0.02*
Negative affect x sensation seeking	0.01
Task accomplishment x typical coping motives	-0.11*
Task accomplishment x conscientiousness	0.11
Task accomplishment x sensation seeking	0.02**

Note. *p <.05; **p <.01

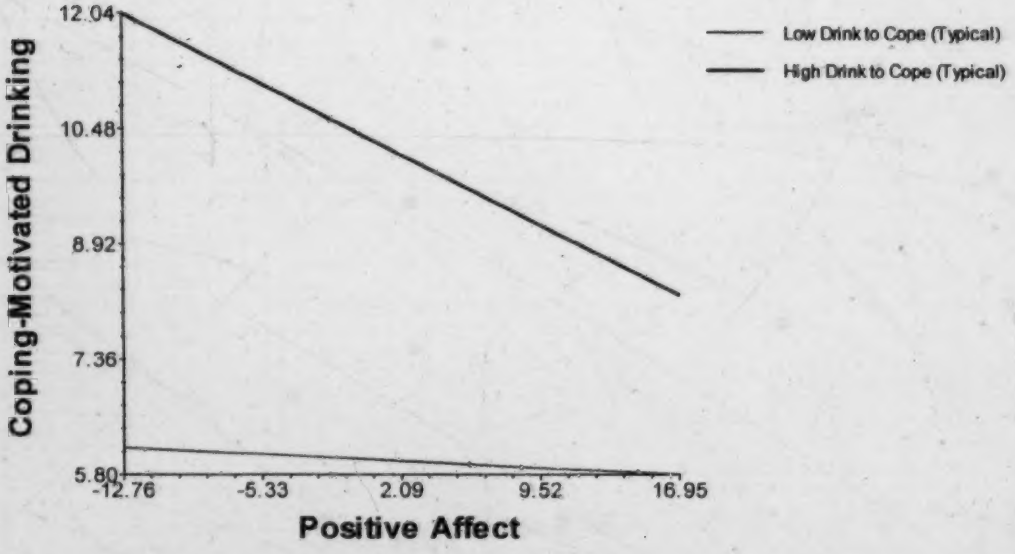
Table 12

Final HLM Model Predicting Daily Endorsement of Coping Motives.

	B
Daily Variables	
Day of the week (fixed)	-0.08
Positive affect	-0.09*
Negative affect	0.13*
Task accomplishment	0.04
Between-Subjects Variables	
Typical coping motives	4.42**
Conscientiousness	0.03
Cross-Level Interactions	
Positive affect x typical coping motives	-0.11*
Negative affect x typical coping motives	0.18**
Task accomplishment x conscientiousness	0.02**

motivated drinking on a daily basis, and this relationship was largely unrelated to daily positive affect. Hence, in terms of predicting daily CM ratings, those individuals who more typically drink to cope with negative affect are more affected by daily positive affect than are those who do not typically endorse CM for drinking.

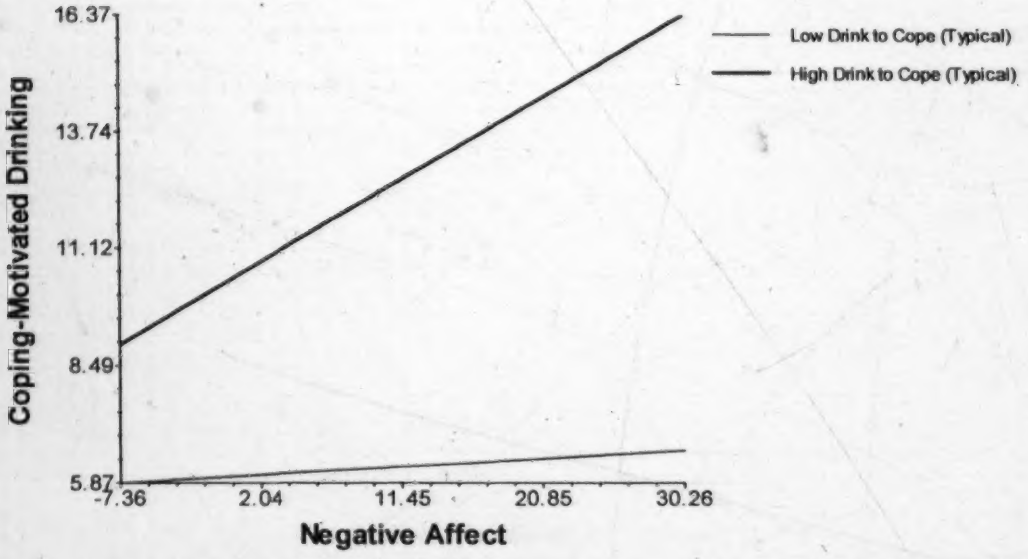
Figure 4. *Typical coping motives moderate the effect of daily positive affect on daily coping-motivated drinking*



The relationship between daily negative affect and daily endorsement of CM for alcohol use was moderated by baseline CM scores ($b = 0.18$, $SE = 0.05$, $t(76) = 3.41$, $p < .01$). As shown in Figure 5, those who typically drink to cope with negative affect were more likely to endorse CM on a daily basis; in addition, they became much more likely to endorse the coping motive as they experienced higher levels of negative affect. In other words, on days when negative affect is experienced, the general tendency to drink to cope

was greater for those who typically drink to cope with negative affect. Those individuals who typically do not endorse coping motives also did not endorse coping motives on a daily basis. There was no relationship between daily negative affect and daily drinking to cope among participants who did not typically drink to cope.

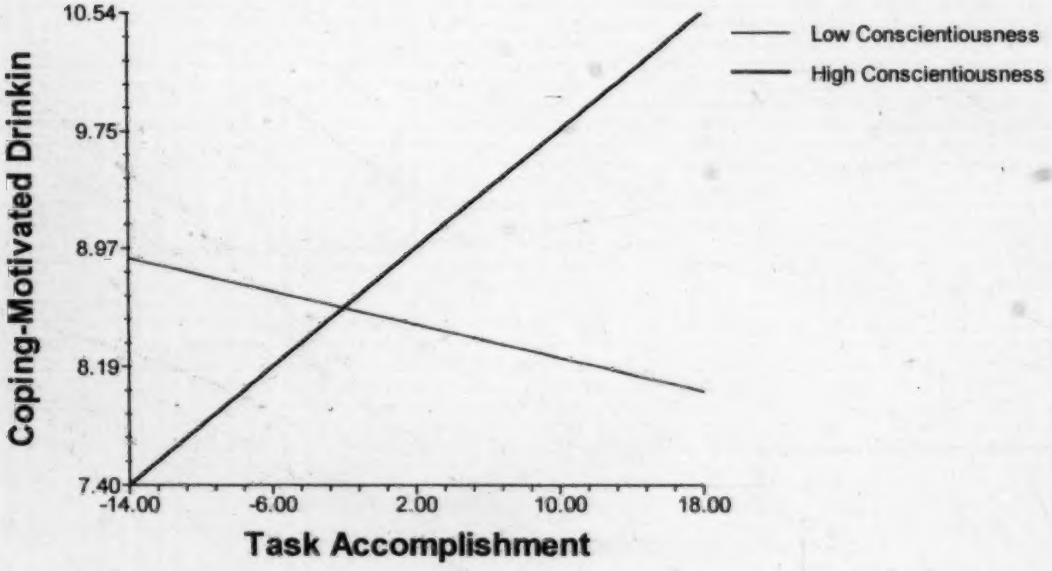
Figure 5. *Typical coping motives moderate the effect of daily negative affect on strength of daily coping-motivated drinking*



Third, Figure 6 shows that conscientiousness moderated the relationship between task accomplishment and level of endorsement of the coping motive for alcohol use (b = 0.01, SE = 0.01, t (70) = 2.68, p <.01). The nature of the relationship between daily task accomplishment and daily endorsement of CM is different for less conscientious and for more conscientious participants. Thus, among highly conscientious participants, a sharp increase in endorsement of CM occurred as daily task accomplishment increased.

Conversely, less conscientious participants showed little change in their drinking as a consequence of daily task acomplishment.

Figure 6. *Trait conscientiousness moderates the effect of daily task accomplishment on strength of daily coping-motivated drinking*



CHAPTER 5

DISCUSSION

The present study acknowledged the need for multiple levels of analysis in studying university student drinking, and responded by using hierarchical linear modeling (HLM) to answer the research questions. We created models representing antecedents of the two intrapsychic (EM and CM) drinking motivations in order to articulate both the unique and shared predictors of each form of drinking, and found good support for the model shown in Figure 1. Each of the variables presented in the model is a predictor of either EM, CM, or both. In addition, on drinking days, positive affect correlated with endorsement of EM and negative affect correlated with endorsement of CM. EM drinking scores were also related to levels of intoxication.

In terms of the multilevel model, EM was predicted by daily positive affect, typical enhancement motives, and typical sensation seeking as well as two cross-level interactions, task accomplishment x conscientiousness and task accomplishment x sensation seeking. CM was predicted by daily positive affect and daily negative affect, typical coping motives, and three interactions, positive affect x typical coping motives, negative affect x typical coping motives, and task accomplishment x conscientiousness.

Enhancement-Motivated Drinking Model

The EM model identified a main effect of typical EM motives. Although there is daily variability in drinking motives, those who report that they typically drink to enhance their experience also tend to endorse this same motive in their day-to-day drinking decision-making. This correlation with a methodologically distinct measure of

individual differences in drinking to enhance provides convergent validation for this subscale of the Drinking Motives Questionnaire.

Daily experiences of positive mood similarly predicted endorsement of daily enhancement motives. Those who are most likely to engage in daily drinking to enhance experience are those individuals who self-report feeling more positive affect during that drinking day. That positive mood but not negative mood predicts endorsement of EM suggests that the nature of enhancement drinking is more concerned with the presence of feelings of activity and enthusiasm than with the relative absence of anger and fear and presence of feelings of calmness, as reflected by the items assessing positive affect and negative affect. Indeed, this concern is also reflected in the items comprising the enhancement subscale (i.e. drinking because it is exciting, drinking to become high). Those who experience less positive emotion on drinking days appear to use alcohol for reasons other than enhancement purposes, further supporting a link between the positive emotions and enhancement-motivated drinking.

Conscientiousness moderated the relationship between daily task accomplishment and drinking motives in the EM model. Those individuals who were less conscientious were more likely to endorse EM when they had failed to complete their tasks, suggesting that drinking to enhance experience may be a spontaneous, impulsive diversion for those less conscientious who have failed to meet their daily responsibilities. It may be that such individuals are turning to alcohol as a distraction from being faced with incomplete responsibilities. In contrast, highly conscientious individuals were more likely to endorse EM when they completed their tasks for the drinking day than when they failed to complete their tasks. It is possible that those who are conscientious will

refrain from using alcohol to intensify their daily experiences until they encounter what they perceive to be an appropriate situation for such a form of drinking. Individuals who are more conscientious may plan their EM drinking experiences and ensure that responsibilities for the day have been met before they engage in alcohol consumption for enhancement purposes. This moderator effect suggests two forms of EM at the daily level. EM drinking behaviour among those who are less conscientious is more maladaptive and may take place when other responsibilities may have been left incomplete. Yet, EM drinking behaviour among those individuals who are more conscientious is more adaptive and takes place when risks (i.e. deadlines and other tasks needing completion) have been minimized.

We also observed both a main effect and an interaction effect for sensation seeking in the EM model. Those scoring higher on a measure of trait sensation seeking were more likely to endorse EM on drinking days. When drinking, those who characteristically seek out novel situations and heightened experiences appear to use alcohol to help accomplish those goals. Magid, MacLean, and Colder (2007) recently reported similar findings. They showed that EM drinking mediates the relationship between sensation seeking and alcohol consumption. While the present study also demonstrates a link between sensation seeking and EM drinking, the present study has endorsement of EM and not levels of alcohol consumption as the outcome variable and demonstrates a more direct effect of sensation seeking on EM drinking behaviour, in that this main effect does not rely on the presence or absence of other factors as does a mediation model.

In this study, the moderating effect of sensation seeking on the relationship between task completion and EM suggests that high and low sensation seekers are equally likely to endorse EM on days in which they have not completed their tasks. However, high sensation seekers become more likely to endorse the enhancement motive when they have met their daily responsibilities, suggesting that these individuals wait for an appropriate opportunity to pursue stimulation by drinking to enhance their experience. In contrast, low sensation seekers who have met their daily responsibilities are less likely to drink to enhance their experience on drinking days. Low sensation seekers may, when they have completed their daily tasks and responsibilities, seek out alternative activities or drink for reasons other than enhancement. This pattern of results argues for the possible role of EM drinking as a form of celebration for high sensation seekers, whereas low sensation seekers may celebrate the completion of their daily tasks in ways other than drinking motivated by enhancement purposes. These effects are independent of the effects involving conscientiousness discussed previously.

Coping-Motivated Drinking Model

The CM model provides a useful contrast to the EM model. Within the model, there was a main effect of typical coping motives on daily endorsement of CM. Those who are more generally inclined to drink to manage their affective distress are also more likely to endorse CM on drinking days. This relationship between typical and daily drinking to cope provides convergent validation for the measure. In addition, there was a main effect for positive mood on endorsement of CM, such that days in which more positive affect was experienced predicted lower endorsement of CM. Positive affect has previously been shown to predict less alcohol consumption among people in general

(Park, Armeli, & Tennen, 2004), while the present study more specifically assessed endorsement of coping motives independent of alcohol consumption levels. Higher levels of positive affect, reflecting high activity levels and feelings of enthusiasm, predicted less endorsement of the coping motive on days where alcohol was used, suggesting that those who are experiencing a positive mood, when they consume alcohol, are engaging in drinking behaviour for reasons other than the coping motivation.

Adding to the complexity of the model, daily positive mood interacted with typical CM to predict daily endorsement of CM on drinking days. On drinking days, as reported levels of positive mood increased, those who more typically drank to cope became less likely to endorse daily-level coping motives, suggesting that CM drinkers are sensitive to low levels of energy and enthusiasm when engaging in alcohol-related decision-making. Relatedly, Mohr and colleagues (2005) reported a negative relationship between average daily positive mood and typical endorsement of CM, although they did not examine CM at the daily level. Positive affect may reflect the relative absence of the affective distress that is associated with coping-motivated drinking. Those who do not typically drink to cope, however, showed little or no variation in endorsement of the coping motive with changes in affect on drinking days. Those who are not generally inclined to drink for coping purposes appear to endorse, or fail to endorse, daily CM relatively independently of daily positive mood. Thus, non-CM drinkers may be less sensitive to daily changes in positive affect when rating their level of endorsement of the coping motivation.

In addition, there was a main effect for daily negative mood in the CM model. Those who reported more negative affect on drinking days were more likely to endorse

daily-level CM. The present study has shown that daily-level links between negative affect and CM reflect the between-subjects relationships found in prior research. Notwithstanding Mohr and colleagues' (2005) discovery of a relationship between average daily negative mood and typical CM, however, there is no precedent in the literature for this relationship when both variables are assessed at the daily level.

An interaction between negative affect and typical CM motives was observed for days in which CM was endorsed. Among people scoring high on typical CM, daily-level CM was more strongly endorsed on drinking days in which greater levels of negative affect were also reported. The increase in endorsement of daily coping motives observed with daily-level increases in negative affect is consistent with prior research demonstrating links between negative affective experiences and typical coping motives for alcohol use (Cooper et al., 1995), but the present study extends these results to daily CM-drinking.

Taken together, it appears that those who are inclined to use alcohol as a coping mechanism are more highly affected by day-to-day variations in mood than are those who tend not to drink for CM purposes. Past research has suggested that CM drinkers lack other, more functional, means of coping with their distress (Fromme & Rivet, 1994). It is noteworthy that drinking to cope is involved in both drinking to replace sadness and low energy with activity and enthusiasm (i.e., positive affect), and drinking to replace anger and frustration with calm and peace (i.e., negative affect). It appears that typical CM drinkers are prompted to drink to cope by each of these unique daily affective experiences. Those who are not typically inclined to drink to cope, on the other hand, may endorse CM for reasons other than daily positive and negative affective experiences.

Also present in the CM model was a cross-level interaction between task accomplishment and conscientiousness. Among those individuals scoring lower on a measure of trait conscientiousness, daily task accomplishment had relatively little effect on endorsement of CM on days where alcohol was consumed. In contrast, highly conscientious participants were more likely to drink for CM purposes on days in which they had completed their tasks. Highly conscientious individuals may feel more at liberty to drink for CM reasons when their tasks are completed, perhaps as a form of post-labour repair and tension reduction. On the other hand, when they have failed to meet their daily responsibilities, commitment to these tasks may prevent conscientious drinkers from drinking to cope. Conscientious drinkers appear to wait for an appropriate time to drink to cope with negative affect, even on days in which they have consumed alcohol for other reasons.

Comparing EM and CM Models

A key feature of both models was that between-subjects predictors accounted for more model variance in the null model (with no predictors added to the model) than did the daily factors. This strengthens the case for taking into account trait-like contributions in the prediction of daily drinking motives, which reflects previous research showing the importance of traits in motivational research (Kuntsche, Knibbe, Gmel, & Engels, 2005). Slightly more than one-third of the variance in the enhancement motives model, and approximately one-quarter of the variance in the coping motives model, was associated with daily factors such as mood and task accomplishment. This provides evidence that the day-to-day changes in a university student's mood and completion of tasks also have

substantial influence on their reasons, or motivations, for drinking, although the impact is less than that of more stable traits.

Some of the same traits and daily factors predicted endorsement of each of the two daily internal drinking motives. First, we observed continuity between our participants' typical forms of intrapsychically motivated drinking (to enhance, to cope) and their motives for drinking on a daily basis in that similar predictors were brought to bear in each model. Second, conscientiousness moderated relationships between task accomplishment and each of the two daily ratings of intrapsychic drinking motives. Highly conscientious student drinkers were more likely than less conscientious participants to endorse *both* EM and CM on drinking days as their levels of task accomplishment increased. Thus, conscientious internally motivated drinking (for either enhancement or coping purposes) seems to be particularly likely to occur when daily tasks have been completed and the drinker is free to engage in alcohol consumption without the risk of falling behind on necessary tasks. The CM drinking undertaken by conscientious individuals after task accomplishment may facilitate post-labour repair and tension reduction, while EM drinking when tasks have been completed may reflect a celebration of having successfully met one's responsibilities.

A primary difference between the two models was the presence of interactions involving daily positive and negative affect in the CM model and only positive affect in the EM model. The pattern for coping motivated drinking strengthens the argument that endorsement of CM is very much associated with affect regulation (Cox & Klinger, 2002). In contrast, positive affect but not negative affect predicted daily endorsement of EM, which appears to be more concerned with seeking out stimulation and positive

experiences. Moreover, the presence of positive affect in both models establishes the key role that the positive emotions play in the prediction of either type of daily internal drinking motives.

The present study extends the findings of Stewart and Grant (2007), Grant et al. (in press) and Birch et al. (2004) to a more inclusive population of student drinkers. The results of our study echo the findings of these researchers in that typical intrapsychic drinking motives and affect work together to predict daily alcohol use behaviours. Yet, the present study better addresses issues of ecological validity present in past research through our use of a longitudinal design and by including drinkers whose typical motives fall across the CM and EM spectrum of possible scores. Also, we examined the strength of each intrapsychic motive on drinking days rather than examining levels of alcohol consumption (i.e., the number of drinks consumed) to better understand the antecedents of intrapsychic motives regardless of the actual amount of alcohol consumed. This again promotes a more inclusive view of drinking that takes into account those individuals who may consume smaller amounts of alcohol on drinking days but whose motivations behind that drinking behaviour are still of interest.

Limitations and Future Directions

One limitation of this study is the question of the direction of the relationships observed, and particularly the relationship between mood and internal drinking motives. The present study cannot determine conclusively whether a negative mood, for example, preceded coping-motivated drinking on a given day, or whether the negative mood followed, or was experienced simultaneously with, drinking to cope. Participants reported their daily mood, alcohol use, and motives only once in the present study. A next step in

the research could assess mood before, during, and after internally motivated alcohol use, either at specific time points, or by asking participants to provide data when considering alcohol use and then following the drinking behaviour. A lagged design might also prove useful, in which mood from the previous day predicts the current day's alcohol use.

Another limitation in the study was the amount of attrition over the fourteen days of the daily diary. Only 15 participants (18.5 percent) completed Day 14, while approximately 53 percent of participants completed Day 11 and fully 75.3 percent completed the diary on Day 7. However, HLM weights those participants who complete more days more heavily than it weights those participants who provide less data. In this way, the method of analysis can make use of all the data rather than discarding data from participants who failed to complete all the diaries, as would be required by the ANOVA repeated measures design.

Additionally, sensation-seeking adolescents are more likely to be dishonest about their involvement in alcohol use (Brown & Zimmerman, 2004). Those young adults in our study who scored high on our measure of sensation seeking may have exaggerated or downplayed their actual use or their motivations for using alcohol. Reports were checked for inconsistencies, but it is possible that over- or under-reporting did take place. We are confident that the size of the sample minimizes the potential effects of any misreporting, but also acknowledge that findings must be interpreted with caution.

This study will guide future initiatives that promote the wellness of university students. Bearing in mind the differences in precursors to the various forms of alcohol use may aid in the creation of more personalized means of reaching university students at risk for abusing alcohol. With each improvement in our understanding of the unique

antecedents of the varying forms of student drinking, those involved in interventions for those students at risk for alcohol problems may improve the effectiveness of their intervention programs (Boyle & Boekeloo, 2006). For example, while prior research tells us that CM drinkers are at increased risk for drinking problems (Holahan et al., 2001), the present study suggests that they (as well as enhancement-motivated drinkers, who are not typically at increased risk for problems) are susceptible to a broad range of daily mood effects. This tells us that interventions must be cognizant of the role of these daily-level mood-related factors in drinking behaviour.

The present study explored models of drinking to enhance experience and drinking to cope with negative affect. We found evidence of different predictors of the two intrapsychic motives for using alcohol. It is important to recognize that there are different antecedents of the two internal drinking motives, as well as differing relationships between stable and daily factors in predicting internal drinking motives. In this way, then, models of alcohol consumption alone fail to capture the complexity of drinking behaviour, whereas an examination of EM and CM drinking behaviour helps to fill many of the gaps left by the consumption models, and particularly the varying precursors of the two intrapsychic drinking motives investigated in the present study.

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APPENDIX A

Consent Form

The Department of Psychology supports the practice of providing safeguards for those who participate in research. The following information is offered to help you decide whether you wish to participate in the present study.

If you consent to participation, you will be asked to:

1. Provide demographic information;
2. Complete questionnaires concerning your typical attitudes, beliefs, mood, alcohol consumption, and activities.
3. Complete an online diary each day for two weeks that asks about your daily task completion, mood, and alcohol consumption.

This baseline session should take about 30 minutes to complete and will be worth one research credit. You may also receive this credit by completing an alternate assignment during the session time.

The diary will take about 3-7 minutes to complete each day and will be worth one additional research credit. You can receive this second research credit by submitting at least one daily diary or alternate activity for the daily diary.

In sum, you can receive your full two credits through participation in the baseline session (or the alternate activity) plus at least partial participation in the daily diary study (or the alternate task for the daily diary study).

Participation in this research is completely voluntary. You may discontinue participation at any time and you may decline to answer any of the questions or questionnaires. At any time during or after participation, you may withdraw permission to use any of the information you provide. All the information you provide will be strictly confidential, that is, no persons other than the research team working with Don Kuiken of the Psychology Department will have access to it.

You may also decide now to complete an alternate educational activity rather than participate in this study. If you decide now—or later in the study—that you would rather do the alternative educational assignment, please let the researcher know and s/he will give you an envelope with your assignment in it. Part of the alternative activity will be completed during today's session and the other part of the assignment will be completed online.

In addition, we ask that you please provide your e-mail address (there is a space provided at the end of this Consent Form). We will use this address to send you a link to the survey website as well as reminders and notes about your daily diary participation. A complete debriefing will also be sent to you using this e-mail address. We will use your e-mail address for these purposes only and will keep your e-mail address private.

Any report of the information you provide, aside from your e-mail address, will be in a form that precludes identification of yourself or anyone to whom you may refer during participation. The information you provide will be identified only by a code number, and it will remain strictly confidential.

After this session, your responses and these consent forms will be separately stored in secure locations in Don Kuiken's laboratory. So, neither the experimenter nor other members of the research team will be able to relate responses to an identifiable research participant. Also, any published or presented reports of this study will discuss only group tendencies, not the results for any specific person.

When you complete the study, you will receive a description of the objectives and rationale for this research.

Your signature below indicates your agreement to participate in this study.

_____ Name (please print clearly)

_____ E-mail Address (please print clearly)

_____ Signature

APPENDIX B

Demographic Information

ABOUT YOU

This section is going to ask you to provide us with information on your background factors such as birth date and ethnicity.

Demographic Information

Please provide the following demographic information. This information can be recorded on the Scantron answer sheet that is attached to this research package. Please provide the information requested by blackening the appropriate circles on that answer sheet.

Your sex: M or F
(Enter this information under the heading marked "SEX")

Your birth date:
Month (mo.)
Day
Year (yr.)
(Enter this information under the heading marked "BIRTH DATE")

Your primary (general) ethnicity:

0. **Aboriginal/First Nations**
1. **African (including Caribbean of African descent)**
2. **East Asian (e.g., Chinese, Vietnamese, Filipino)**
3. **South Asian (e.g., Pakistani, East Indian, Bangladesh)**
4. **European (e.g., French, German, Italian)**
5. **Hispanic/Latin-American (e.g., Chilean, Brazilian, Mexican)**
6. **Middle Eastern (e.g., Iraqi, Iranian, Egyptian)**
7. **Euro-North American (including Euro-Canadian)**
8. **Pacific Islander**
9. **Other**

(Enter the code number associated with your primary ethnicity under the heading marked "SPECIAL CODES," column K)

Your primary (first) language is:
0. English
1. A language other than English
(Enter the code number associated with your primary language under the heading marked "SPECIAL CODES," column L)
Now, please respond to the following questions on the main part of the Scantron sheet.

1. Your year in university:

A. 1 B. 2 C. 3 D. 4 E. 5+

2. Do you presently live:

A. University residence
B. With parent(s)
C. In a shared apartment or house
D. In an apartment or house by yourself
E. Other: (list)_____

3. In which faculty are you presently registered?

A. Arts
B. Agriculture/Forestry
C. Business/Commerce
D. Education
E. Engineering
F. Science
G. Other: (list) _____

APPENDIX C

Sensation Seeking Scale

Each of the items below contains two choices, A and B. Please blacken the circle on your Scantron form to indicate which of the choices most describes your likes or the way you feel. In some cases you may find items in which both choices describe your likes or feelings. Please choose the one which better describes your likes or feelings. In some cases you may find items in which you do not like either choice. In these cases mark the choice you dislike least. Do not leave any items blank. It is important you respond to all items with only one choice, A or B. We are interested only in your likes or feelings, not in how others feel about these things or how one is supposed to feel. There are no right or wrong answers as in other kinds of tests. Be frank and give your honest appraisal of yourself.

1. A. I like "wild" uninhibited parties.
   B. I prefer quiet parties with good conversation.

2. A. There are some movies I enjoy seeing a second or even third time.
   B. I can't stand watching a movie that I've seen before.

3. A. I often wish I could be a mountain climber.
   B. I can't understand people who risk their necks climbing mountains.

4. A. I dislike all body odors.
   B. I like some of the earthy body smells.

5. A. I get bored seeing the same old faces.
   B. I like the comfortable familiarity of everyday friends.

6. A. I like to explore a strange city or section of town by myself, even if it means getting lost.
   B. I prefer a guide when I am in a place I don't know well.

7. A. I dislike people who do or say things just to shock or upset others.
   B. When you can predict almost everything a person will do or say he or she must be a bore.

8. A. I usually don't enjoy a movie or play where I can predict what will happen in advance.
   B. I don't mind watching a movie or play where I can predict what will happen in advance.

9. A. I have tried marijuana or would like to.
   B. I would never smoke marijuana.

10. A. I would not like to try any drug which might produce strange and dangerous effects on me.
    B. I would like to try some of the drugs that produce hallucinations.

11. A. A sensible person avoids activities that are dangerous.
    B. I sometimes like to do things that are a little frightening.

12. A. I dislike "swingers" (people who are uninhibited and free about sex).
    B. I enjoy the company of real "swingers."

13. A. I find that stimulants make me uncomfortable.
    B. I often like to get high (drinking liquor or smoking marijuana).

14. A. I like to try new foods that I have never tasted before.
    B. I order the dishes with which I am familiar so as to avoid disappointment and unpleasantness.

15. A. I enjoy looking at home movies, videos, or travel slides.
    B. Looking at someone's home movies, videos, or travel slides bores me tremendously.

16. A. I would like to take up the sport of water skiing.
    B. I would not like to take up water skiing.

17. A. I would like to try surfboard riding.
    B. I would not like to try surfboard riding.

18. A. I would like to take off on a trip with no preplanned or definite routes, or timetable.
    B. When I go on a trip I like to plan my route and timetable fairly carefully.

19. A. I prefer the "down to earth" kinds of people as friends.
    B. I would like to make friends in some of the "far-out" groups like artists or "punks."

20. A. I would not like to learn to fly an airplane.
    B. I would like to learn to fly an airplane.

21. A. I prefer the surface of the water to the depths.
    B. I would like to go scuba diving.

22. A. I would like to meet some persons who are homosexual (men or women).
    B. I stay away from anyone I suspect of being "gay" or "lesbian."

23. A. I would like to try parachute jumping.
    B. I would never want to try jumping out of a plane, with or without a parachute.

24. A. I prefer friends who are excitingly unpredictable.
B. I prefer friends who are reliable and predictable.

25. A. I am not interested in experience for its own sake.
B. I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal.

26. A. The essence of good art is in its clarity, symmetry of form, and harmony of colors.
B. I often find beauty in the "clashing" colors and irregular forms of modern paintings.

27. A. I enjoy spending time in the familiar surroundings of home.
B. I get very restless if I have to stay around home for any length of time.

28. A. I like to dive off the high board.
B. I don't like the feeling I get standing on the high board (or I don't go near it at all).

29. A. I like to date persons who are physically exciting.
B. I like to date persons who share my values.

30. A. Heavy drinking usually ruins a party because some people get loud and boisterous.
B. Keeping the drinks full is the key to a good party.

31. A. The worst social sin is to be rude.
B. The worst social sin is to be a bore.

32. A. A person should have considerable sexual experience before marriage.
B. It's better if two married persons begin their sexual experience with each other.

33. A. Even if I had the money, I would not care to associate with flighty rich persons in the "jet set."
B. I could conceive of myself seeking pleasures around the world with the "jet set."

34. A. I like people who are sharp and witty even if they do sometimes insult others.
B. I dislike people who have their fun at the expense of hurting the feelings of others.

35. A. There is altogether too much portrayal of sex in the movies.
B. I enjoy watching many of the "sexy" scenes in movies.

36. A. I feel best after taking a couple of drinks.

B. Something is wrong with people who need liquor to feel good.

37. A. People should dress according to some standard of taste, neatness, and style.
B. People should dress in individual ways even if the effects are sometimes strange.

38. A. Sailing long distances in small sailing crafts is foolhardy.
B. I would like to sail a long distance in a small but seaworthy sailing craft.

39. A. I have no patience with dull or boring persons.
B. I find something interesting in almost every person I talk to.

40. Skiing down a high mountain slope is a good way to end up on crutches.
B. I think I would enjoy the sensation of skiing very fast down a high mountain slope.

APPENDIX D

Drinking Motives Questionnaire

N.B. Slightly different instructions were used for the baseline measure (Typical Drinking Motives) and for the daily diary measure (Daily Drinking Motives).

Endorsement of Typical Drinking Motives (Baseline Measure)

Listed below are reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for each of these reasons? Please use the following rating scale for each of your responses and circle the appropriate letter:

(a) Almost never or never
(b) Some of the time
(c) Half of the time
(d) Most of the time
(e) Almost always or always

Endorsement of Daily Drinking Motives (Daily Diary Measure)

Listed below are reasons people sometimes give for drinking alcohol. Thinking of your drinking today, please indicate HOW STRONGLY you were motivated to drink for each reason, using the following scale:

Very slightly or not at all	A little	Moderately	Very much	Extremely
a	b	c	d	e

a	b	c	d	e	1. To forget your worries.
a	b	c	d	e	2. Because your friends pressure you to drink.
a	b	c	d	e	3. Because it helps you enjoy a party.
a	b	c	d	e	4. Because it helps when you feel depressed or nervous.
a	b	c	d	e	5. To be sociable.
a	b	c	d	e	6. To cheer you up when you are in a bad mood.
a	b	c	d	e	7. Because you like the feeling.
a	b	c	d	e	8. So that others won't kid you about *not* drinking.

a	b	c	d	e	9. Because it's exciting.
a	b	c	d	e	10. To get high
a	b	c	d	e	11. Because it makes social gatherings more fun.
a	b	c	d	e	12. To fit in with a group you like.
a	b	c	d	e	13. Because it gives you a pleasant feeling.
a	b	c	d	e	14. Because it improves parties and celebrations.
a	b	c	d	e	15. Because you feel more self-confident and sure of yourself.
a	b	c	d	e	16. To celebrate a special occasion with friends.
a	b	c	d	e	17. To forget about your problems.
a	b	c	d	e	18. Because it's fun.
a	b	c	d	e	19. To be liked.
a	b	c	d	e	20. So you won't feel left out.

APPENDIX E

Alcohol Use Disorders Identification Test (AUDIT)

For the questions below, please note that *one drink* of alcohol is defined as:
1 bottle/can of beer (12 oz.) **or** 1 glass of wine (5 oz.) **or** 1 ½ ounce of liquor **or** 1 bottle/can of cooler (12 oz.)

4. How often in the past year did you have a drink containing alcohol?

A	B	C	D	E
Never	monthly or less	2 to 4 times per month	2 to 3 times per week	4 or more times per week

5. In the past year, how many drinks containing alcohol did you have on a typical day when you were drinking? [If you are a non-drinker, please omit this question]

A	B	C	D	E
1 or 2	3 or 4	5 or 6	7 to 9	10 or more

6. In the past year, how often did you have six or more drinks on one occasion?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

7. How often during the last year have you found that you were not able to stop drinking once you had started?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

8. How often during the last year have you failed to do what was normally expected from you because of drinking?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

9. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

10. How often during the last year have you had a feeling of guilt or remorse after drinking?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

11. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

A	B	C	D	E
never	less than monthly	monthly	weekly	daily or almost daily

12. Have you or someone else been injured as a result of your drinking?

A	B	C
no	yes, but not in the last year	yes, during the last year

13. Has a relative or friend or a doctor or other health worker been concerned about your drinking or suggested you cut down?

A	B	C
no	yes, but not in the last year	yes, during the last year

APPENDIX F

Positive and Negative Affect Scale (PANAS)

Indicate to what extent you have felt the following emotions and feelings today. Record your answers by completely blackening the circle corresponding to your answer. Use the following rating scale:

Very slightly or not at all	A little	Moderately	Quite a bit	Very much
0	1	2	3	4

Interested	Distressed	Excited	Determined
Upset	Strong	Guilty	Attentive
Scared	Hostile	Enthusiastic	Jittery
Proud	Irritable	Alert	Active
Ashamed	Inspired	Nervous	Afraid

APPENDIX G

Internal Consistency and Item Totals for the Task Accomplishment Scale

Item	Item total correlation	Alpha if item deleted
1.I did as much as I should have done today to meet the deadlines I am facing during the next week.	0.64	0.88
2. I will have to work harder tomorrow to make up for what I did not accomplish today.	0.68	0.87
3. I did my portion of the work that I do jointly with others (e.g., house cleaning) today.	0.29	0.90
4. I managed to finish the things I needed to finish before the end of today.	0.71	0.87
5. At the end of today, I will feel that I have "unfinished business" in school or at work.	0.71	0.87
6. Today I finished what I needed to finish for tomorrow.	0.50	0.89
7. I worked as many hours today as I feel I should have.	0.69	0.87
8. At the end of today, I will feel "caught up" with the tasks that I am committed to.	0.69	0.87
9. Today I did as much as I should have done on long-term projects (e.g., term papers).	0.71	0.87
10. I will need to "catch up" tomorrow on things that I did not finish today.	0.65	0.88

APPENDIX H

Task Accomplishment Scale

The following statements describe how you may feel about the things you needed to get done today. Thinking about what you did today, use the scale below and record your response on the Scantron sheet:

Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
0	1	2	3	4

1. I did as much as I should have done today to meet the deadlines I am facing during the next week.
2. I will have to work harder tomorrow to make up for what I did not accomplish today.
3. I managed to finish the things I needed to finish before the end of today.
4. At the end of today, I will feel that I have "unfinished business" in school or at work.
5. I worked as many hours today as I feel I should have.
6. At the end of today, I will feel "caught up" with the tasks that I am committed to.
7. Today I did as much as I should have done on long-term projects (e.g., term papers).
8. I will need to "catch up" tomorrow on things that I did not finish today.

APPENDIX I

Daily Alcohol Use Items

For the questions below, please note that *one drink* of alcohol is defined as:

1 bottle/can of beer (12 oz., 341 ml) or 1 glass of wine (5 oz., 150 ml) or 1 ½ ounce of liquor or 1 bottle/can of cooler (12 oz., 341 ml)

Did you drink alcohol today? Yes / No

How many drinks did you have today?
I had _____ drinks.

How intoxicated did you become?

Not at all intoxicated	Slightly intoxicated	Somewhat intoxicated	Quite intoxicated	Very intoxicated
0	1	2	3	4